

# MARINE REVIEW.

VOL. IX.

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No. 13.

## Ore and Coal Freights—The Fuel Question.

Since extensive contracts were made some time ago for carrying ore from the head of Lake Superior at 80 cents a ton, the Cleveland representatives of the Biwabik mine, one of the Missabe range properties, have engaged tonnage for about 130,000 tons at the same rate, but under conditions that will probably extend the time of the vessels engaged into November, or twenty to thirty days later than the time of expiration on the first contracts announced. It is now evident that the few vessels that were paid 80 cents on season contracts from Marquette have the best business that has so far been given out. The Byron Whitaker vessels of Detroit are understood to have taken 10,000 tons of ore to be carried from Marquette to South Chicago at 75 cents, and there was a rumor in Cleveland during the week of a small block of Marquette ore having been taken by Toledo parties at 65 cents, but the transaction is not one of importance and the interested parties claim that the rate is somewhat better than that named. There is no improvement in the general situation. Even the owners who have ore contracts to fulfill are encouraging delay in the movement of vessels, on account of the absence of cargoes otherwise, and on all hands there is a disposition not to fit out the poorer classes of vessels at all or delay operations until May 1.

Some bituminous coal is being sold, but the prices are very low and the outlook for freights on it has never been so discouraging, as there is practically nothing offering, even in the way of first loads. One concern, the Pittsburg and Chicago Gas Coal Company, which has figured prominently in the fuel question, has sold 60,000 tons of coal for delivery at Green Bay at an exceedingly low price, said to be \$1.96. Allowing 60 cents for mining, 90 cents rail freight and 15 cents for transferring from cars to vessels, there would be only 31 cents left on this price for lake freight. This company is, however, very closely allied with the management of the Baltimore & Ohio Railway Company, whose officers have for some time been making great efforts to secure a strong foothold in the lake coal shipping business, and the relations with the railway company probably admit, in part, of the low price referred to being made on the Green Bay contract. The steamboat fuel contract with the same company involves about 58,000 tons, taken by a dozen or more vessel owners, who have in all cases contracted for only a part of the fuel which their boats will take at Cleveland. The prices are \$1.90 at the fuel docks, \$2.00 when put aboard by lighters and \$1.75 when taken on by the steamers during time of loading cargo. This is the only fuel contract that has been made, and although some of the vessel owners seem more determined this year than ever to refuse to enter into an agreement to take fuel from the shipper giving them a cargo, the talk of a fight between vessel owners and coal shippers is greatly exaggerated. The contract here referred to will very probably affect prices of fuel for the coming season, but the outcome of the stand taken by some of the vessel owners on the fuel question as a whole remains to be seen.

## Bills Passed by the United States Senate.

Senator Frye has again succeeded in having several bills of a marine nature passed by the senate, but there is the usual doubt regarding the consideration of them by the house before adjournment. Some of them have been considered and passed in former sessions of the senate. The first, senate bill No. 497, provides for graded salaries among steamboat inspectors, the same to be regulated by the number of steamers inspected. Another, senate bill No. 507, proposes to return to the custom of charging a fee of \$1 in all cases where collectors of customs furnish certificates of title to vessels. Still another of the bills, No. 509, makes minor changes in the law governing the marking of vessels' names on bow or stern. There is also another measure, No. 511, extending to the secretary of war the right to establish and enforce regulations for navigation of canals of the United States other than the St. Marys Falls and St. Clair canals, which are already under the direction of that officer.

## Engines For Fast Boats.

The triple expansion engines of the yacht Dawn, owned by Mr. J. S. Newberry of Detroit and claimed to be the fastest thing of her class on the lakes, have been undergoing a rebuild at the Frontier Iron Works, Detroit, during the past winter, and were successfully tested Tuesday afternoon. The engines were built by the Herreshoffs of Bristol, R. I., and were fitted with that firm's usual type of valve gear, but the Frontier works removed this and fitted the engines throughout with Joy valve gear, with a view to obtaining better steam distribution. The old piston

valves were removed also, and new ones of the Frontier type substituted. The engines were run as high as 700 revolutions per minute without a hitch occurring from start to finish. The connected air pump has also been removed and a Dean (Indianapolis) independent air pump substituted. It is expected that the Dawn's speed will be materially increased by these improvements.

Work on engines for all the fast boats seems to be drifting to the Frontier company. The machinery of the U. C. Me, another Detroit claimant for the speed record, built by the Collier company of Detroit last year, is also undergoing a rebuild in the Frontier shops. These, together with the quadruple engine of the McElroy flyer, will give them a good representation among the fast ones.

## Combinations of Naval Powers.

The following tables, bearing upon the strength of the principal navies, are taken from a paper read by Admiral Sir John Dalrymple-Hay, vice president of the British Institute of Naval Architects, at the annual meeting of that organization in London last week:

BATTLESHIPS.

	Armor clad Battleships.								Combination of Two Powers.			
	Great Britain.	France.	Russia.	Germany.	Italy.	United States.	All.		France-Russia.	France-Germany.	France-Italy.	France-United States.
First class.....	22	18	10	4	12	4	48		28	22	30	22
Second class.....	12	13	8	7	4	..	32		21	20	17	13
Third class.....	11	6	...	11	5	2	24		6	17	11	8
Total battleships.....	45	37	18	22	21	6	104		55	59	58	43

PROTECTED CRUISERS.

	Armored Cruisers.									Combination of Two Powers.					
	Great Britain.	France.	Russia.	Germany.	Italy.	United States.	Austria.	Spain.	All.	France-Russia.	France-Germany.	France-Italy.	France-United States.	France-Austria.	France-Spain.
First-class cruisers.....	31	14	11	...	6	3	1	6	41	25	14	20	17	15	20
Second class cruisers.....	47	25	2	9	...	...	4	...	40	27	34	25	25	29	25
Third class cruisers .....	51	31	3	19	...	...	7	...	60	34	50	31	31	38	31
	129	70	16	28	6	3	12	6	141	86	98	76	73	82	76

COAST DEFENSE VESSELS.

Great Britain.	France.	Russia.	Germany.	Italy.	United States.	Spain.	Argentina.	Brazil.	Chili.	Denmark.	Netherlands.	Norway and Sweden.	Total.
16	6x8 armored gun-vessels=14	15	3	4	19	1	3	3	1	4	16	12	105

Some idea of the steady increase in the size of ships can be formed from the statistics compiled by Lloyds' Register. These statistics are confined to seagoing vessels of over 100 tons, and from them it appears that the shipping tonnage of the world in 1890 was 22,151,651, and the number of vessels 32,298. Last year the figures were 24,258,375 tons, represented by 32,010 vessels, showing an increase of tonnage in three years of 2,100,274 with a decrease in the number of vessels of 288.



### Another View of the Whalebacks.

Editor MARINE REVIEW.—The whaleback discussion grows interesting and the late contribution in your columns, from their patent attorney, is not the least amusing of the series, and well illustrates whaleback methods. The demolition of men of straw, set up by themselves for that express purpose, is a favorite trick of some fighters, such as politicians and lawyers, raising false issues, under whose cover they dodge the real ones, while the plaintive whine about the terrible amount of abuse which the inventor of these boats had to suffer (presumably in meek silence,) is well calculated to bring a smile to the face of any one at all conversant with the flood of misrepresentation as to the boats and their capabilities, which has from the beginning poured forth from every one at all connected with them, and which has, to a large extent, given them such vogue as they now enjoy.

The two assertions so unfairly credited to "Fairplay," and which your legal correspondent takes a column and a half to demolish to his own satisfaction, incidentally injecting some of the usual whaleback "rot" about "magnificent performance," "the vessel of the future," etc., are, first, that Capt. McDougall was not the inventor, and second, that they are not patentable. Neither of these points has the slightest bearing on the question of the commercial and lasting success of the boats, which is presumably the object of the whole discussion.

The second required no answer, for no one questions the fact that patents have been issued, and plenty of them, to your Washington correspondent's manifest past advantage and hoped-for future profit, in litigation, perhaps, if not in more patents. It is one thing to get a patent, however, and quite another to have it made good in court, as perhaps the whaleback people may learn before they get through with the "active steps" now being taken "to prevent infringement." The first point may well be considered a matter of opinion, though no one can deny that Capt. McDougall is entitled to the greatest credit, not, however, for combining certain features that had all been used before—and years before—in various vessels, but for his dogged perseverance, his rugged combativeness, his magnificent enthusiasm and faith and power of impressing them on others, and last, but by no means least, his quickness in abandoning many of his preposterous claims as soon as practical trial had shown their absurdity, and in getting his craft nearer and nearer, as more and more were built, to the ordinary vessel.

Your legal correspondent makes a most ridiculous assertion, that "it is a matter of record in the patent office that as long ago as 1880 the modern whaleback barge, steamer, and passenger boat were clearly and fully developed in his mind and were represented in models." In the first patent, issued in 1881, the vessel described and illustrated, is almost perfectly cylindrical, had no turrets, needed no rudder, and was about as much like the present boats as they are like Cleopatra's barge. If the modern boat was then fully developed in the inventor's mind why, in 1888 did he build the 101 to his first crude ideas? Why, as soon as she was tried, did he go over his notions, and build the next boat under water, except the spoon bow, exactly like an ordinary vessel? Why has he kept continually flattening the deck? Why, in the patent issued in December, 1888, does he describe the midship section as "differing from the shape of the tow-boats described and illustrated in my said letters patent, and assuming more nearly a rectangular form with rounded corners?" Why, in the same patent, does he abandon the spoon bow, saying: "The bow, substantially semi-circular for the upper half of the hull, in the lower half is hollowed out, in this last respect being of a well-known form. The advantage of this form of bow is to prevent burying in the waves and to allow the bow to rise and ride easily over such waves. In like manner the stern," etc.

This "square with rounded corners" for the midship section applies to every cargo boat under water ever built, and above water is only the turtle-back deck, a very old form and still much used. Why, again, after thus stating that the ordinary bow is the better, does he still cling to the spoon, to most people the worst thing about the present boat? Or is it because, with the curious ends and rounded deck abandoned, the distinctive features of the whaleback would be gone, and the dear public, so long misled, would begin to understand that these features had nothing to do with the success of the boats?

The plain fact is that the commercial success of the whalebacks has been not to what our legal friend calls "those features which are characteristic of them and which are entirely novel and original," but to a curious conjunction of circumstances, with which few inventors or adapters are lucky enough to meet. Coming into service first about the time that the boom for steel hulls commenced on the lakes, and all the other yards were busy constructing steamers, they started as tow barges, in competition with wooden vessels; their material of construction alone gave them a great advantage, while the fact that some of the shrewdest managers of steel steamers are now going back to the old practice of towing, shows that in that respect the whalebacks were on the right path. For both these reasons, with the booming freights of that time, the first boats made money, and large capital was secured, while the financial backers, through their other interests, furnished business for the increasing fleet; this, by

keeping the building yard full all the time, reduced the cost of construction very largely, while it is well known that the town of West Superior not only paid a large bonus to get the yard located there, but for many years paid an additional bonus in cash every week of 10 per cent. of the pay roll; and finally, the whole outfit, yards, boats, land deals and all were in one pool, which, in the booming times up to last season, made barrels of money and paid big dividends. Few men acquainted with vessel property on the lakes or elsewhere, would think of ascribing all this success to the whaleback features of the scheme; any ordinary steel fleet, under like circumstances, would have done as well. That last season, so disastrous to vessel interests on the lakes in general, saw many whalebacks laid up, and this winter has closed the yard at West Superior, as well as the widely heralded plant on the Pacific coast, which has not launched even its first boat yet, is tolerably good evidence that they are not such vastly superior money-makers after all.

Again, if the whaleback is such a "magnificent success," "the vessel of the future" and all that, why is it that only four in all have been built for outside parties, and two of these, really, for one of their own stockholders? If so much unexampled technical knowledge and scientific skill has been used in their construction, why is it that two of these four, though built each 20 feet longer than the contract called for, still failed by some 300 tons each to carry the load guaranteed, according to common report, though the matter was settled out of court; and the other two not only fell short some hundreds of tons from the contract loads, but were so unsuitable in other respects, that it is a matter of public notoriety that a suit for heavy damages against the builder was instituted? This is the "Pigs vs. the Soo" case, referred to by the "Man Off the Dock" in your issue of Nov. 15 last.

To answer the "Man On the Dock's" assertion that the father of the whaleback has never gone out of his way to attack the "regular pattern" would uselessly extend a communication perhaps already too long, but it could easily be done. For six years the newspaper and technical press has been burdened with false statements as to the capabilities of the boats, their cheapness in construction and operation, their speed and cargo capacity, and detailed comparisons between them and boats of the "regular pattern" in similar trades have been given out, in which an advantageous showing for the whaleback has been made, and only made, by a departure from the facts in the case and the actual records. For proof of this, see the comparison between the Charles W. Wetmore and the Bay-City-built Mackinaw in the American Shipbuilder of August, 1891, and that between the Colgate Hoyt and the Cleveland-built Matoa in the Marine Record of July, 1892. Further, in a paper on lake steamers read last August before the engineers of the world, at the congress in Chicago, by a self-styled "naval architect," the whaleback is referred to as follows: "To-day these peculiar looking vessels are generally preferred by American underwriters, while business with their designers and builders is eagerly sought." Ye shades of Lloyds!

TOPSAIL.

### Proposed Changes in Canada's Marine Laws.

Special Correspondence to the MARINE REVIEW.

KINGSTON, March 29.—Three measures affecting the marine business are now before the parliaments. Hon. M. Bawell wants deputy harbor masters, lighthouse keepers and such like officers, whose salaries are less than \$200 per year, appointed by the minister of the department without orders in council. These officers would not come under the superannuation act. It is also proposed to amend the seamen's act so that a master of a vessel cannot only recover for the wages of his seamen but also for disbursements properly incurred on account of his vessel. Another clause has reference to relief granted to ship-wrecked Canadians. A Canadian is one who has been domiciled in Canada for twelve months and persons leaving in ships registered in Canada are deemed domiciled in Canada while so serving.

The government is reorganizing the staff on the Welland canal and the axe has descended on the heads of thirty-nine persons, including William Ellis, superintendent; J. B. Smyth, deputy superintendent, Meriton; Andrew Hamilton, deputy superintendent, Port Robinson; William Carter, harbor master, Port Colborne; James Dell, section foreman, Thorold; J. E. Lawrence, clerk of canal office, and seventeen lock tenders. The government chiefs declared that when the new Welland canal was built it was only contemplated to be a substitute for the old one and it was not intended to maintain both. It is the employees mostly connected with the old canal who have been removed.

Some of the New York newspapers recently complimented Mr. Lloyd Griscom, youngest son of the president of the American Line, on his generous reception among the British nobility as private secretary to Ambassador Bayard. This is doing well for Mr. Griscom the youngest, but he has two brothers who are doing a great deal more for their country at home. C. A. Griscom, Jr., practically manages the affairs of the great company in New York, and Rodney Griscom is a valuable assistant in the superintending engineer's office in Philadelphia.



## Some Appointments of Masters and Engineers.

Parker, A.A., Detroit, Mich.: Steamers—John Oades, Capt. Tim Lemay, Engineer James Falconer; A. A. Parker, Capt. J. T. Hutton, Engineer Joseph McKittrick; Minneapolis, Capt. H. W. Bogart, Engineer John Morgan; John Pridgeon, Jr., Capt. D. N. Sherwood, Engineer, H. Mahoney. Schooners—B. W. Parker, Capt. Edward Lohr; Red Wing, Capt. John A. Anderson; San Diego, Capt. Henry Morey; Saveland, Capt. Charles Woods.

Millen, Capt. J.W., Detroit, Mich.: Steamers—Iron King, Capt. William F. Millen; Iron Chief, Capt. Sidney J. Millen; Iron Duke, Capt. Noman L. Miner; Iron Age, Capt. William A. Irvine. Schooners—Iron Queen, Capt. Albert J. Mahon; Iron Cliff, Capt. Thomas Fitzsimmons; Iron State, Capt. W. W. Carter; Iron City, Capt. M. J. Pridgeon. Passenger steamer—Greyhound, Capt. John Robertson.

Parker & Millen, Detroit, Mich.: Steamers—B.W. Blanchard, Capt. Thos. Meikleham, Engineer E. McTilley. Tugs—Saginaw, Capt. Thomas Hayes, Engineer Neil Maitland; Balize, Capt. Hugh W. Hagan, Engineer D. W. Blauvelt; Onaping, Capt. John E. Tobin; Favorite, Capt. Martin Swain, Engineer E. W. Tilley.

Jenkins, Capt. John, Marine City, Mich.: Steamer—W.H. Sawyer, Capt. John Jenkins, Engineer Thomas Treleaven. Schooners—Tuxbury, Capt. John O'Hagen; Redfern, Capt. Wyman Power.

McBrier, James, Erie, Pa.: Steamers—Fedora, Capt. F.A. Fick, Engineer Stephens; Nyanza, Capt. Donald McDonald, Engineer J. W. Blanchard; Uganda, Capt. C. H. Wilson, Engineer Wm. Mead.

Inter-Ocean Transportation Company, Milwaukee, Wis.: Steamers—Maryland, Capt. Jos. E. Yax; Manchester, Capt. Timothy Kelley; Manhattan, Capt. H. F. Loftus; Massachusetts, Capt. P. A. Anderson; Merrimac, Capt. Matt. Smith; Minnesota, Capt. Berlin Sniffen. Schooner—Metacomet, Capt. W. L. Shields.

Benham, C.E., Cleveland, O.: Steamers—Nahant, Capt. J. Mullen, Engineer C. A. Winship; H. B. Tuttle, Capt. W. P. Benham, Engineer W. M. Beers. Schooners—Queen City, Capt. Wm. Allen; Henry C. Richards, Capt. Chas. Fredricks.

White, W. J., Cleveland, O.: Steamers—Quito, Capt. C. E. Little, Engineer J. C. Johnson; Britannic, Capt. Ira Mansfield, Engineer W. N. Eddy. Yacht—Say When, Capt. Joseph D. Todd, Engineer William Shuman.

Mitchell & Co., Cleveland, O.: Steamers—Centurion, Capt. Wesley C. Brown, Engineer, M. Toner; Wm. H. Gratwick (steel), Capt. M. P. Parsons, Engineer W. F. Sauber; Wm. F. Sauber, Capt. Charles B. Galton, Engineer C. J. Love; R. L. Fryer, Capt. Christian Peterson, Engineer William Fetting; John Mitchell, Capt. W. H. Cowin, Engineer Nelson Goulette; Wm. H. Gratwick, (wood), Capt. Richard Jackson, Engineer Frank B. Parker; Ed. Smith, No. 2, Capt. David Carrier, Engineer Henry Graves; Ed. Smith, No. 1, Capt. B. D. Townsend, Engineer Peter Lavelly; Geo. T. Hope, Capt. N. V. Nelson, Engineer Gumlich. Schooners—John C. Fitzpatrick, Capt. K. A. Jensen; S. E. Marvin, Capt. Wm. Brines; R. L. Fryer, Capt. Eli Jacques; C. J. Fillmore, Capt. N. C. Kendall; Angus Smith, Capt. Owen Townsend; Maria Martin, Capt. Wm. Rouvel; Troy, Capt. H. C. Dien; Camden, Capt. J. S. Van Renslaer; Joseph Paige, Capt. A. E. Bullock.

Minch, Philip J., Cleveland, O.: Steamers—Onoko, Capt. W. H. Johnson, Engineer Wm. Miller; J. N. Glidden, Capt. Joseph Lampoh, Engineer John Klasen; P. Minch, Capt. Wm. Young, Engineer John Connelly; H. A. Tuttle, Capt. C. Young, Engineer Wm. Donovan; A. Everett, Capt. Wm. Gerlach, Engineer O. J. Schneider. Schooners—Sophia Minch, Capt. Horace Fisher; Warmingtton, Capt. Frank Coles.

Leisk, Henry, Milwaukee, Wis.: Steamer—P. J. Ralph, Capt. H. Leisk, Engineer John J. Burns. Schooner—Harold, Capt. Thos. Leisk.

American Transportation Company, Fairport, O.: Steamers—Alex. Nimick, Capt. A. H. Reed, Engineer O. M. Beach; John Harper, Capt. H. L. Miller, Engineer C. M. Stoddard.

Hebard, Charles, Pequaming, Mich.: Steamers—Charles Hebard, Capt. James Parsons, Engineer William Schumacker. Tugs—Daniel L. Hebard, Capt. Hugh McKenzie, Engineer Joseph Greenleaf; Jay C. Morse, Capt. Fred. C. Rogers, Engineer Charles Fischer; Allenton and yacht Morgan, Capt. John P. Richards, Engineer John Rossiter. Schooners—Jennie M. Peterson, Capt. Charles Bough; Aloha, Capt. William Elliott; Annabell Wilson, Capt. Dan Nathan.

Tonawanda Barge Line, Tonawanda, N. Y.: Steamers—F. R. Buell, Capt. C. W. Woodgrift, Engineer C. F. Lamb; A. Weston, Capt. M. Hyde, Engineer John Hibbard; Canisteo, Capt. W. J. Lynn, Engineer C. S. Peltier; Norwalk, Capt. C. S. Ruby, Engineer ———. Schooners—A. Stewart, Capt. Geo. Pollock; Eleanor, Capt. Frank Dubay; Jennette, Capt. Edward Moore; Elvina, Capt. Wm. Campau; Fulton, Capt. Frank Laforge; J. B. Lozen, Capt. John B. Lozen; S. B. Pomeroy, Capt. James O. Robertson.

Hart's Steamboat Line, Green Bay, Wis.: Steamers—Welcome, Capt. Wm. Baptist, Engineer George Coulter; Fannie C. Hart, Capt. H. W.

Hart, Engineer Mike Peck; C. W. Moore, Capt. Charles Graves, Engineer Charley Moreland; Eugene C. Hart, Capt. C. B. Hart, Engineer James Miller.

Williams Transportation Company, South Haven, Mich.: Steamers—City of Kalamazoo, Capt. David Morris, Engineer Perry Knaggs; H. W. Williams, Capt. John Boyce, Engineer A. G. Green; Lorain L., Capt. Frank Swails, Engineer Will Tyler.

Niagara Navigation Company, Toronto, Ont.: Steamers—Chippewa, Capt. John McGibben, Engineer Robert McCall; Cibola, Capt. W. H. Solmes, Engineer William Walsh; Chicora, Capt. James Harbottle, Engineer H. Parker.

Kingston and Montreal Forwarding Company, Limited, Kingston, Ont.: Thrush, Capt. Leon Pregent, Condor, Capt. Dernosse Perron; Hiawatha, Capt. Emanuel Ledue; Lapwing, Capt. Joseph Ledue; Dakota, Capt. Moise Chatel; Huron, Capt. Triffie Hebert; Cherokee, Capt. Thomas Lauren; Iroquois, Capt. Francis Mathew; Beauport, Capt. Narcese Gimlan, Sr.; Jet, Capt. Diselte Senical; Siren, Capt. Frank Porier; Bismarck, Capt. J. St. Michel; Princess, Narcese Gamlin, Jr.; Virginia, Capt. Joseph Perrow, Jr.; Mona, Capt. Paul Reid; Quebec, Capt. James Gallivan; Lark, Capt. William Gilmour; Imperial, Capt. J. Buvien; Montcalm, Capt. C. Darcaw; C. P. R., Capt. A. Verville; National, Capt. W. Charland; Rosa, Capt. M. Robideux; Helena, Capt. O. Latroverse; Ernest, Capt. A. Darean; Adele, Capt. H. Perron; Doris, Capt. Jos. Perron; Victor, Capt. A. Laroche; Rachel, Capt. I. Beaubean; Alice, Capt. M. Laeghea; Leberal, Capt. F. H. Laryette; Jos. Edward, Capt. J. Charland; St. J. Baptiste, Capt. B. Darcaw; Elm, Capt. H. Hoppins; Rapid, Capt. Wm. Roach; Snipe, Capt. Wm. McConnell.

Curtis & Brainard, Toledo, O.: Steamers—Mohegan, Capt. William Hogan, Engineer William Dinsmore; Cherokee, Capt. John Hogan, Engineer D. S. Foster; Miami, Capt. J. A. Ward, Engineer E. Flanigan. Schooners—Mingoe, Capt. A. Snelynove; Chippewa, Capt. Wm. Barrett.

Adams, Thomas, Detroit, Mich.: Steamers—Tom Adams, Capt. D. Nicholson, Engineer James Kelley; J. H. Farwell, Capt. Don J. Duncan, Engineer W. F. Cullen; F. E. Spencer, Capt. James Laframboise, Engineer John Johnston. Schooner—J. H. Rutter, Capt. S. L. Ketchum.

Farwell Transportation Company, Detroit, Mich.: Steamer—Geo. L. Colwell, Capt. A. C. Smith. Schooners—D. P. Dobbins, Capt. ———; J. Godfrey, Capt. George Kunnea.

Ashley & Dustin, Detroit, Mich.: Steamers—Frank E. Kirby, Capt. A. J. Fox, Engineer E. Perry; Wyandotte, Capt. J. Disena, Engineer ———.

Buckley, Edward, Manistee, Mich.: Steamer—Edward Buckley, Capt. Charles Gnewuch, Engineer Richard Winkler.

Northern Steamship Company, Buffalo, N. Y.: Steamers—Northern Wave, Capt. N. Niland, Engineer Fred Potts; Northern Queen, Capt. E. M. Smith, Engineer Harry Reynolds; North Wind, Capt. Delos Waite, Engineer Frank Harringer; Northern Light, Capt. M. J. Haberer, Engineer Lawrence Gebhard; North Star, Capt. William Thorne, Engineer John O'Mara; North King, Capt. Marion Tinney, Engineer William Pike; Northwest, Capt. W. H. Campau, Engineer Duncan Frazier.

Loutit, W. H., Grand Haven, Mich.: Steamer—Pentland, Capt. Thos. McCambridge, Engineer John Farnham.

Mathews Line, Toronto, Ont.: Steamers—Niagara, Capt. James Morgan, Engineer M. D. Tetro; Clinton, Capt. ———, Engineer James S. Adams. Schooners—Lisgar, Capt. C. Coons; Grimsby, Capt. G. W. Maitland; Emerald, Capt. Jno. Philp; Clara Youell, Capt. W. J. Colwell.

Brown, George W., Port Arthur, Ont.: Steamer—Cambria, Capt. P. C. Telfer, Engineer John Doran.

Rice, John, Buffalo, N. Y.: Steamer—Robert Mills, Capt. Robert Drury, Engineer John H. Maybury.

Huron Barge Company, Cleveland, O.: Steamer—Pathfinder, Capt. W. B. MacGregor, Engineer C. A. Heisner. Barge—Sagamore, Capt. John Weeks.

Lake Superior Iron Company, Cleveland, O.: Steamers—Wawatam, Capt. E. Mooney, Engineer, E. Dempsey; La Salle, Capt. H. W. Stone, Engineer Warren Tilton; Joliet, Capt. P. Mullen, Engineer ———; Griffin, Capt. Orville Green, Engineer Geo. W. Mason; Andaste, Capt. Wm. Ames, Engineer Frank Steadley; Choctaw, Capt. John Ward, Engineer Frank B. Smith.

Republic Iron Company, Cleveland, O.: Steamers—Republic, Capt. J. A. Landfair, Engineer Wm. Lowe; Specular, Capt. E. T. Rattray, Engineer A. E. Burg; Continental, Capt. Chas. Hinslea, Engineer John Smith. Schooners—Magnetic, Capt. Wm. Megarvey; Grace Holland, Capt. Harry Rogers.

Cleveland-Cliffs Iron Company, Cleveland, O.: Steamers—Pontiac, Capt. James B. Lowe, Engineer Thomas B. Kelley; Frontenac, Capt. Samuel N. Murphy, Engineer P. W. Whalen; Pioneer, Capt. Albert E. White, Engineer Jenkins; Cadillac, Capt. John C. Symes, Engineer Eli V.

[Continued on page 12.]



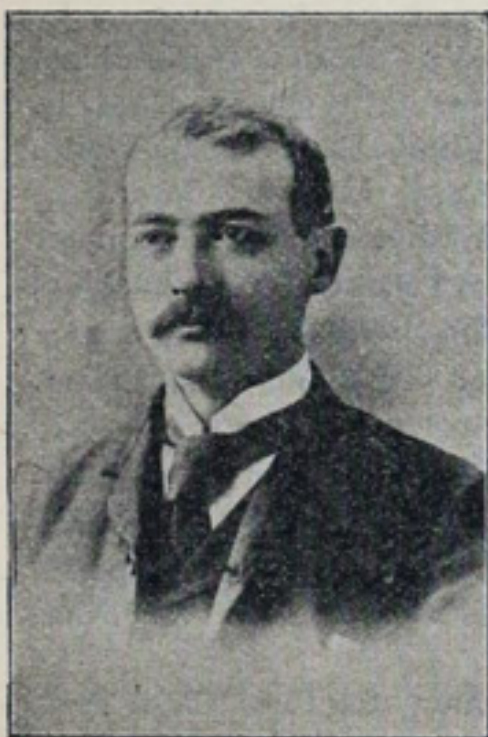
## Insurance Tariffs for 1894—The Underwriters.



C. W. ELPHICKE, CHICAGO.

Some of the shrewdest men connected with the shipping business of the lakes are to be found among the general agents who represent marine insurance companies. Their methods, especially as regards the high commissions involved and the great number of sub-agencies drawing such commissions, have been criticized, but in their dealings with lake vessel owners they have proven themselves a very capable body of men. Portraits of a few of the leading spirits in this business appear on this page. They met in Cleveland a few days ago to formulate hull and cargo tariffs for 1894, and notwithstanding their disagreements in the past, they have again signed schedules of rates and a great number of regulations for another season's business. Probably the most important action taken at the meeting was the establishment of cargo rates on coal and iron ore at 18 cents for Lake Michigan and 20 cents for Lake Superior business. Last year some of the "blanket" contracts on coal and ore running throughout the season were made at figures equal to about half the prices now agreed upon. Of course, these risks were taken last year at unreasonable prices, with a view to obtaining hull insurance in return for the low cargo rates, but if the promises of the underwriters are to be relied upon, the new rates will be maintained in 1894. Local agents' commissions are placed at 10 per cent. on all business, excepting steel hulls, on which the commission is but 5 per cent., and in this regard also there are promises of no departures from the agreement.

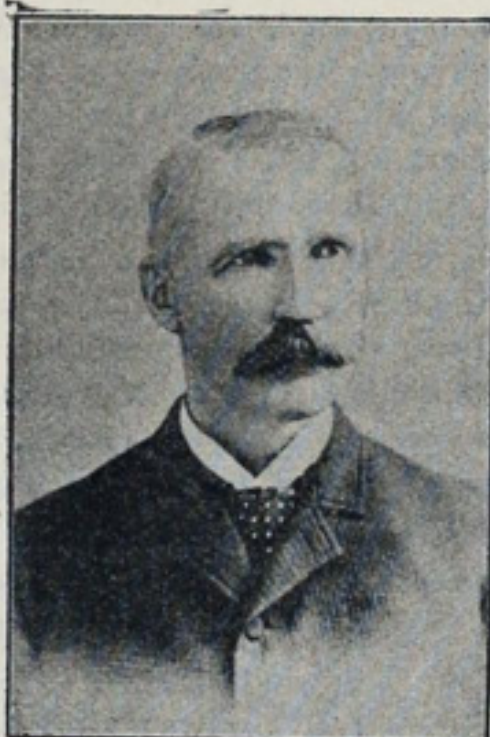
In hull insurance, which concerns the vessel owners most, the several changes in



C. A. MACDONALD, CHICAGO.

the tariff amount, on the whole, to a reduction of about one-fourth of one per cent. on the very best class of wooden risks. On A2 risks, however, with which the underwriters claim to have suffered the heaviest losses again last season, advanced rates are general, and for vessels classed below A2 the rates will be practically prohibitive. No change is made in last season's rates for steel vessels, but a new clause is brought in, providing that if the bottoms of metal vessels are sheathed with 4 inches and upwards of wood a deduction of one-fourth per cent will be made. This is to encourage construction similar to that of the steamer Harvey H. Brown, recently launched by the Detroit Dry Dock Company, as it is expected that with steel boats sheathed in this way there will be less liability of losses through stranding in shallow channels.

With reductions of 10 to 30 per cent. in valuations as they will appear in the new Inland Lloyds Register, which will not, by the way, be out until April 10, and further restrictions in the tariff, the underwriters have taken a long step toward protecting themselves against vessels being too highly valued. There will be no allowance of 10 per cent. above the book value in this year's business. On A1 and A1½ wooden steamers the maximum value will be the register value and the minimum 80 per cent. of the register value, while on all other wooden boats the maximum will be but 90 per cent. of the figures in the register and the minimum 80 per cent. Rebates and cancellations are all the same as last year, but the one-third new for old clause in the new tariff is waived, in all cases where the insurer pays for it, and in the fire business there is also

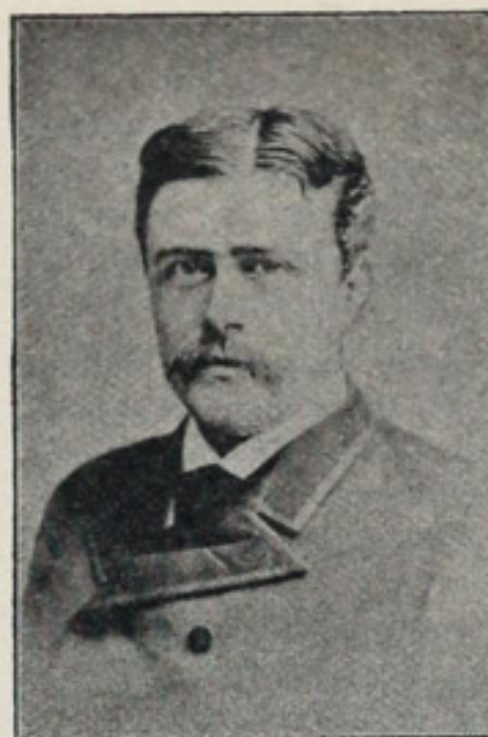


DAVID VANCE, MILWAUKEE.

To induce owners to carry part of their own collision liability the tariff makes the rate for that insurance one-half per cent. for three-quarters insurance, against 1 per cent. for full insurance. The reductions in valuations on A2 vessels will be as great as 20 to 25 per cent. and on B1 25 to 30 per cent. Advances in premium rates on A2 vessels can not be given in detail but they are raised all along the line. On boats valued at \$50,000 the rate of the ordinary lake policy will be 5¾ per cent. A trip rate for May is also made. It is 7 per cent. of the season rate, as against 10 per cent. for April. More detail than is here given is contained in the full tariff, which at the time of going to press was not in print, but the important changes are well covered in this summary. The new rates for cargo insurance represent an advance of practically 50 per cent. Iron ore and coal dealers are not taking kindly



J. S. GADSDEN, CHICAGO.

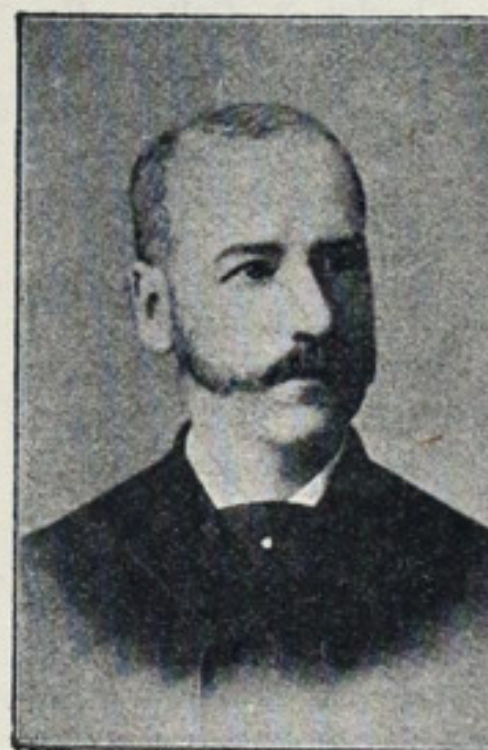


HENRY S. SILL, BUFFALO.

some important changes. For ex-fire on all wooden hulls the deduction, pro rata, is 1 per cent. per annum, while for separate fire policy, fire conditions, the different classes of risks are divided as follows: A1 and A1½, 1 per cent.; A2 and A2½, 1½ per cent.; B1, 2 per cent.

In view of the probability of a number of vessels, especially those loaded with grain in Chicago, being laid up, on account of the unfavorable freight outlook, after making one trip, the tariff provides for insurance covering a first trip, and the clause governing it may be stated in this way: Ascertain the season rate on time of policy wanted and then charge 10 per cent. of same. This takes the vessel from port of loading to port of discharge; allows forty-eight hours after arrival at port of discharge, and covers either

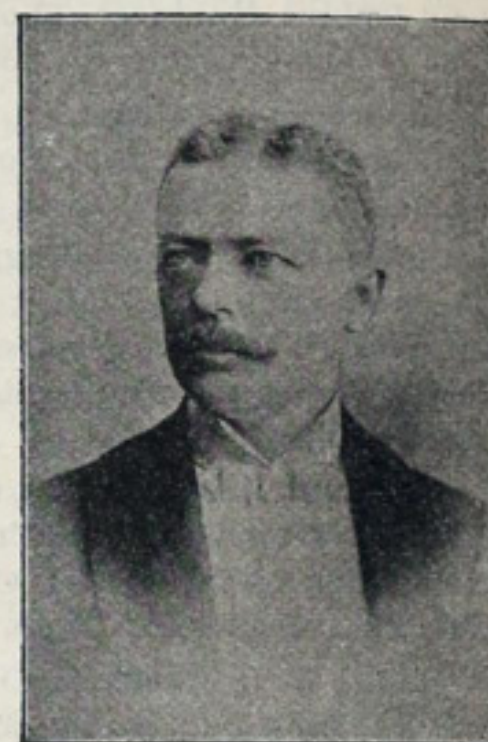
the long trip from Duluth or Chicago to lower lakes or from any other port, no matter how short the distance. The work of preparing the tariffs took up the better part of three days from the underwriters, and among those present were William Sandrock of Smith, Davis & Co. and Henry Sill of Worthington & Sill, Buffalo; David Vance and Frank L. Vance of David Vance & Co., Milwaukee; C. W. Elphicke, A. L. Fitch, P. H. Fleming, Geo. L. McCurdy, C. A. MacDonald, J. S. Gadsden, J. J. Rardon and W. H. Calbick of Chicago; James J. Clark of Detroit, J. H. Platt of New York and Mr. Bigelow of the St. Paul Fire and Marine Company. Messrs. William Sandrock, Frank L. Vance, Henry Sill, Geo. L. McCurdy and J. H. Platt were members of the committee engaged on the detail of formulating the hull tariff.



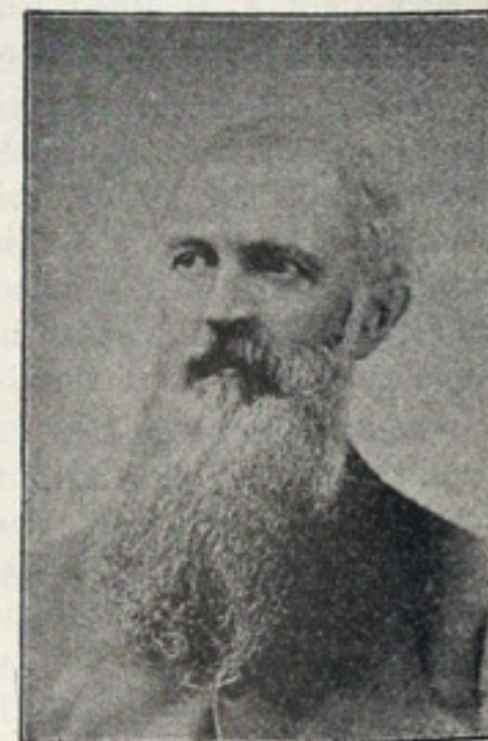
GEO. L. MCCURDY, CHICAGO.

A committee consisting of Messrs. Platt, Sandrock, Vance, Elphicke and MacDonald, was entrusted with the selection of an officer of the association to whom all adjustments of losses will be submitted for approval, before being sent to the underwriters. The committee was to meet later in Chicago, but it is probable that the position will be given to Capt. A. R. Manning of Cleveland. This same committee will, it is expected, appoint local inspectors at several ports, who will be engaged throughout the season in inspecting boats, with a view to guarding, as far as possible, against losses on grain cargoes through leakage of vessels that have not been rigidly inspected.

Under the new tariff the underwriters will issue to wooden vessels of over \$50,000 valuation a total indemnity policy, by which owners will be paid in full if they prefer the ocean policy to the usual lake form of policy.



P. H. FLEMING, CHICAGO.



JAMES J. CLARK, DETROIT.



to the new order of things, but by a combination of circumstances in the past, and through the efforts of local agents to obtain hull business, they have been very fortunate. It was decided that at another meeting in Chicago the complaints of grain shippers regarding averages would be heard and per cent. of damage required to make a loss lowered. At present the loss must be 5 cents to recover from insurance companies. That figure was made when small schooners did the grain traffic, and has never been changed. With vessels carrying 150,000 bushels shippers can lose 7,500 bushels before being able to recover. The percentage will be reduced to about 1 per cent. The coarse freight tariffs follow:

RATES ON COARSE FREIGHTS, SEASON OF 1894, AS ADOPTED BY LAKE UNDERWRITERS AT CLEVELAND, O., MARCH 23, 1894.

Coal and Ore.

Lake Superior to Lake Erie and vice versa.....20 cents.  
Lake Michigan to Lake Erie and vice versa.....18 cents.  
Lake Ontario to Lake Superior and vice versa.....30 cents.  
Lake Ontario to Lake Michigan and vice versa.....25 cents.  
Twenty-five per cent. additional on vessels classing B1; lower classes prohibited.

Rails and Pig Iron.

Ports to ports.....40 cents.      Steam.      Sail.  
Lake Ontario to Lake Michigan and Superior...60 cents.      50 cents.  
Vessels classing below A2 prohibited.      75 cents.

FREIGHT LISTS.	Apr. 1 to Aug. 31	Rate for Sept.	Rate for Oct.	Rate for Nov.	Rate for season.
A1 and A1½ steamers valued at \$50,000 and upwards .....	.15	.20	.30	.50	.20
A1 and A1½ steamers valued at \$25,000 and \$50,000.....	.20	.25	.35	.60	.30
A1 and A1½ steamers valued between \$10,000 and \$25,000.....	.25	.30	.40	.75	.40
A2 steamers valued at \$40,000 and upwards.....	.20	.30	.40	.60	.35
A1 steamers valued between \$25,000 and \$40,000.....	.25	.40	.50	.75	.40
A1 and A1½ sail valued at \$15,000 and upwards .....	.20	.30	.40	.60	.30
A1 and A1½ sail valued between \$10,000 and \$15,000.....	.25	.40	.50	.75	.40
A2 sail valued at \$25,000 and upwards.....	.20	.30	.40	.60	.35
A2 sail valued between \$10,000 and \$25,000	.25	.40	.50	.75	.40

Commission not to exceed 10 per cent.

LUMBER TARIFF FOR THE SEASON OF 1894, COVERING ON AND UNDER DECK—WHEN ENTIRE INTEREST IS ON DECK, DOUBLE RATES.

	To Sept. 1.	Sept.	Oct.	Nov.	Flat rates for season.
Lake Superior to Lake Michigan	\$0 30	\$0 60	\$1 00	\$1 25	\$0 60
Lake Superior to Lake Huron and Detroit river.....	30	60	1 00	1 25	60
Lake Superior to Lake Erie.....	30	60	1 00	1 25	60
Lake Superior to Lake Ontario...	40	80	1 05	1 40	80
Lake Superior to Ogdensburg...	45	90	1 20	1 60	90
Lake Michigan to Lake Michigan	20	40	60	80	40
Lake Michigan to Lake Huron and Detroit river.....	25	50	75	1 00	45
Lake Michigan to Lake Ontario..	40	80	1 05	1 40	80
Lake Michigan to Lake Erie.....	30	60	75	1 00	50
Lake Michigan to Ogdensburg...	45	90	1 20	1 60	90
Lake Huron to Lake Michigan..	25	50	75	1 00	45
Lake Huron to Lake Erie.....	25	50	75	1 00	45
Lake Huron to Lake Huron and Detroit river.....	25	40	60	80	40
Lake Huron to Lake Ontario.....	30	60	80	1 10	55
Lake Huron to Ogdensburg.....	35	70	90	1 25	60
Georgian Bay to Lake Michigan..	30	60	75	1 00	50
Georgian Bay to Lake Huron and Detroit river.....	25	50	75	1 00	45
Georgian Bay to Lake Erie.....	30	60	75	1 00	50
Georgian Bay to Lake Ontario...	40	80	1 05	1 40	80
Georgian Bay to Ogdensburg.....	45	90	1 20	1 60	90
Lake Ontario to Lake Ontario....	25	50	75	1 00	50
Lake Ontario to Ogdensburg....	30	55	80	1 00	75
Lake Erie to Lake Erie.....	20	40	60	80	40

Twenty-five per cent. additional on B1½ vessels; 100 per cent. additional on B2s. No B1½ or B2 vessels after Sept. 1. On transient risks charge 50 per cent. additional to the graded rate. Commissions not to exceed 10 per cent.

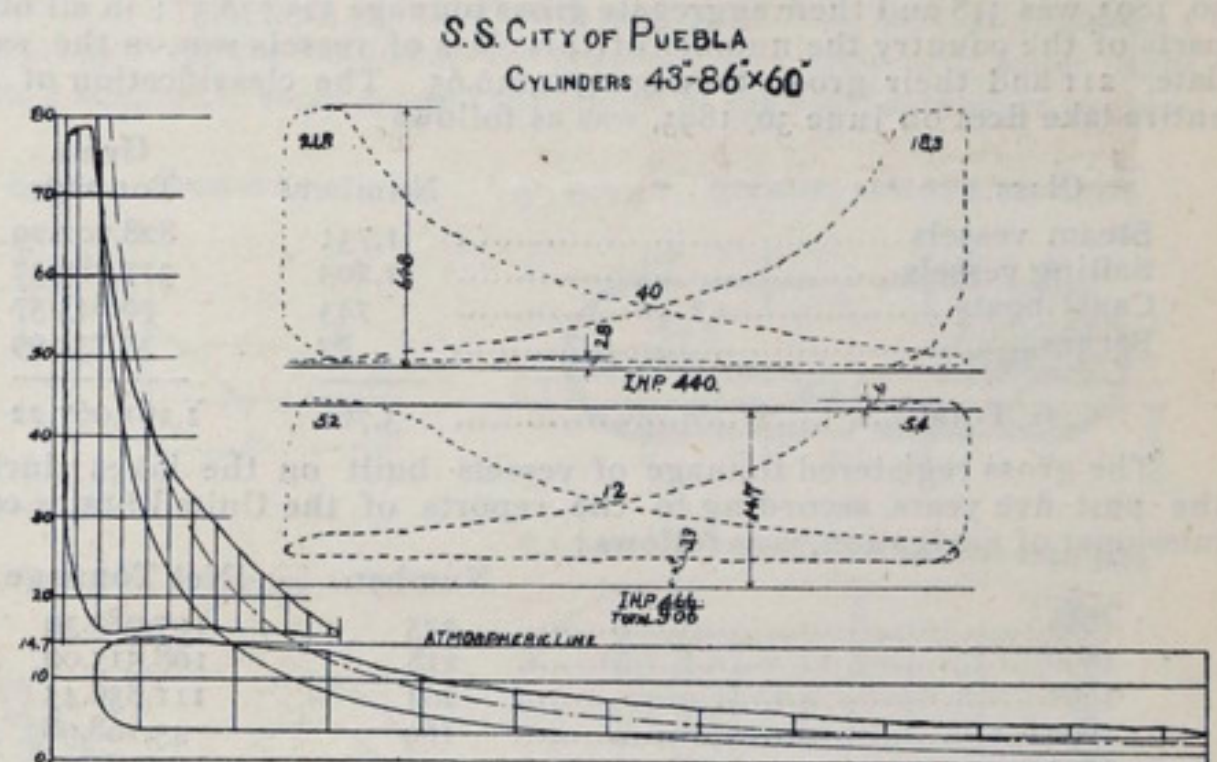
If Dell Tillman, formerly steward of the whaleback steamer Christopher Columbus, will send his address to the Chicago Ship Building Company, South Chicago, Ill., he will learn of information to his advantage.

April 19 is the date set for the official opening of the Welland canal.

## Notes and Queries on Engineering Subjects.

CONDUCTED BY GEO. C. SHEPARD.

The indicator cards shown below are from the compound engines of the S. S. City of Puebla, built in 1881 by Cramp & Sons for the New York, Havana and Mexican Mail Line and afterwards sold to run on the Pacific coast. The vessel is 340 feet long, 39 feet beam and 26 feet deep and her cost complete was \$394,000. Steam was supplied by four Scotch boilers, 15 feet diameter and 12 feet 9 inches long, aggregating 340 square feet grate surface and 1,000 square feet heating surface. Wheel 16 feet 4 inches diameter and 23 feet pitch. In the engines, which were designed by Mr. R. W. Peck, who is now superintending the construction of machinery in the steamer Northwest, we find a departure from the usual practice and something almost unknown on the lakes, namely, the use of the Corliss type of valves and gear with the Stephenson link to effect reversal.



Further particulars of the cards are: Boiler pressure, 73 pounds; vacuum, 24.5 inches; revolutions per minute, 50.

Steam is cut off in the H.P. cylinder at one-tenth of the stroke and thereby expands ten times in the H.P. cylinder. Now the L. P. cylinder is four times the H. P., and the steam to fill it must expand to four times its volume in the H.P. cylinder, and hence to forty times its volume at the point of cut off in the H. P. cylinder. The diagrams from the two cylinders have both been expanded to the same scale of pressure and volume, and theoretical curves of expansion of the formula  $PV^{1.0} = C$  have been drawn in—one through the point of steam cut off in H. P. cylinder and the other cutting actual expansion line of diagram at a point 40 pounds absolute. The clearance is assumed to be 5 per cent. of the piston displacement of each cylinder, and it is seen that steam lines in both cylinders rise considerably above the theoretical curve of expansion, probably due to the re-evaporation of the steam condensed by the cylinder walls.

The mean absolute terminal pressure from H. P. card=17.5 pounds, from L.P. card=3.7 pounds and the absolute initial, 79.5 pounds of the H.P. cylinder, divided by the terminal, 3.7 pounds of L.P. cylinder, equals 21 expansions. We would ask our engineer readers which is the proper number of expansions to accredit this engine, and why? Also what is the indicated water consumption? We believe that engineers will find many points of interest in this performance, so different from their general experience, and that it presents problems the solution of which will afford pleasant recreation and profitable study.

Editors MARINE REVIEW:—What effect will it make in the opening and closing of the exhaust by a slide valve if lap is added to the valve, and what will be the difference in hooking up? M.

ERIE, Pa., March 25, 1894.

If you add lap to steam edge of your valve you will, of course, increase the angularity of the eccentrics a proportionate amount, and this will cause the exhaust to open earlier and to close earlier than with the original lap and angularity. In hooking up with the new lap the Stephenson link, if such it be, will not have to be drawn as far from full-gear position to get a certain point of cut off as with the old lap. This means less angularity of the "equivalent eccentric" and hence a later exhaust opening and closing, so that with added lap an earlier cut off of steam can be effected with the same exhaust opening and compression as with the original lap on a later cut off.

The program for the International Inland Navigation Congress, to be held at The Hague during the present year, recently issued, deals with the following questions: Construction of canals which allow a rapid transit; equipment of ports; prevention of blockade by ice; locomotion on canals and rivers; dues on navigable waters; relations between the profile of rivers and the depth of their channels; regulation of rivers for low water.

CORRECTED CHARTS OF THE ST. MARY'S RIVER CAN BE HAD FROM THE MARINE REVIEW, 516 PERRY-PAYNE BUILDING, CLEVELAND, O.



# MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O.  
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SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each.  
Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,761 vessels, of 1,261,067.22 gross tons register in the lake trade. The lakes have more steam vessels of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of steam vessels of 1,000 to 2,500 tons on the lakes on June 30, 1893, was 318 and their aggregate gross tonnage 525,778.57; in all other parts of the country the number of this class of vessels was, on the same date, 211 and their gross tonnage 314,016.65. The classification of the entire lake fleet on June 30, 1893, was as follows:

Class.	Number.	Gross Tonnage.
Steam vessels .....	1,731	828,702.29
Sailing vessels.....	1,205	317,789.37
Canal boats.....	743	76,843.57
Barges.....	82	37,731.99
Total.....	3,761	1,261,067.22

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

	Number.	Net Tonnage.
1889.....	225	107,080.30
1890.....	218	108,515.00
1891.....	204	111,856.45
1892.....	169	45,168.98
1893.....	175	99,271.24
Total.....	991	471,891.97

## ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

	St. Mary's Falls Canal.			Suez Canal.		
	1892.	1891.	1890.	1892.	1891.	1890.
No. vessel passages	12,580	10,191	10,557	3,559	4,207	3,389
Ton'ge, net regist'd	10,647,203	8,400,685	8,454,435	7,712,028	8,698,777	6,890,014
Days of navigation..	223	225	228	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

It is plain to everybody concerned that extreme measures must be resorted to in order to reduce the exorbitant charges that are made to vessels at Buffalo and other Lake Erie ports for shoveling grain. Managers of the affairs of the elevator pool undoubtedly encouraged the scoopers' union in its refusal to reduce shoveling charges, as the elevator managers claimed that they could not reduce the price charged for steam shovels unless the scoopers also made a reduction. As a matter of fact the elevator managers control the situation with their steam shovels, and have not at any time been disposed to make a reduction. A greater number of men than is required in the hold of a vessel while the grain is being taken out is employed in the different gangs, and the boss scoopers in this way increase the revenues of their boarding houses, while the men are not overpaid. It is in the steam shovel arrangement, however, that the vessels are "skinned." Under the pretense made by the elevator managers, that the steam shovels are rented to the boss scoopers at \$1.75 per thousand bushels for steam vessels and \$1.50 per thousand for sail vessels, the vessel owners are forced to contribute \$1,750 in a single day to an elevator that will readily unload 100,000 bushels from steam vessels. As the first cost of a steam shovel is but about \$3,000, it will be seen that even under most liberal allowance for wear and tear, this kind of machinery is a great source of profit to the elevators. The vessel owners can break up this steam shovel arrangement, and the present is a most opportune time to do so.

IN AN editorial dealing with the practicability of transporting unbroken trains of cars from Great Britain to the Continent by means of car ferries running between London and Paris, the New York Mail and Express compliments the ship builders of the lakes upon the success of the car ferries of Lake Michigan and the Straits of Mackinac, and suggests that with the experience to be had from the lakes the French and English railways that would profit by such a system of ferries could perfect the necessary arrangements in a very short period. The distance from Paris to London is but about one-third of the run made by the Toledo, Ann Arbor & Northern Michigan car ferries across Lake Michigan between Keweenaw, Mich., and Frankfort, Wis. The Lake Michigan ferries and those at the Straits of Mackinac are, of course, not the only vessels of their

kind now in service. In New York harbor there are several car ferry lines for both passengers and freight, and a similar service has been inaugurated by the Central Pacific at the Straits of Carquinez, where the ferry steamer Solano carries twenty-four passenger cars or forty-eight freight cars, with the locomotive, across a strait in which the current attains a velocity of eight miles per hour, embarking and landing its train in about fifteen minutes, and the New York, Philadelphia & Norfolk Railroad has for about ten years maintained a car ferry between Cape Charles and Norfolk, Va., a distance of thirty-six miles.

It is evident that National President George Uhler of the Marine Engineers' Beneficial Association is determined upon encouraging educational work in all of the local organizations. He returned to Philadelphia from Duluth a few days ago, after having completed a visiting tour to all of the lake associations. In all of his addresses he laid great stress on the advantages to be secured from discussion of engineering subjects at regular meetings, especially during the winter season when meetings are well attended. Although there has been no public reference to the question of wages in connection with the visit of Mr. Uhler to the lakes, he has brought up matters having a direct bearing upon the subject. He argues that the development of the marine engine from the single cylinder machine of a few years ago to the high-powered quadruple expansion engine of the present time has greatly increased the responsibilities of the engineer and the skill required in the profession, and is the crowning feature of advancement in the shipping business.

DURING all of the discussion previous to the enactment, a few weeks ago, of the law providing for the detailing of assistant inspectors of steam vessels at steel mills to inspect boiler plate, it was held by the REVIEW that, although every effort should be made to facilitate the work of the manufacturers, the tests should be made away from the mills, where the inspectors would not in any way be influenced by the steel makers. The Carnegie armor plate fraud, which has come to light within the past few days, proves the wisdom of this claim. Officers of the Carnegie company are close as clams about the investigation of the government that caused them to give up \$140,000, although it would seem that their patrons in the ship building business throughout the country would be very much interested in an explanation of the so-called irregularities in their works.

UNLESS officers of the Lake Carriers' Association hurry themselves at once in treating with the senate committee on commerce the south will get its seven millions or more for harbor appropriations in the civil sundry appropriation bill, while the lakes will be put off with a few thousand dollars for many aids to navigation that have already been authorized by law.

## Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on March 24, 1894:

	Wheat, bu.	Corn, bu.
Chicago.....	20,138,000	5,777,000
Duluth.....	11,208,000	261,000
Milwaukee.....	890,000	.....
Detroit.....	1,923,000	46,000
Toledo.....	3,142,000	107,000
Buffalo.....	1,238,000	337,000
Total.....	38,539,000	6,528,000

At the points named there is a net increase for the week of 762,000 bushels of wheat and a net decrease of 1,224,000 bushels of corn.

## Changes in Lake Lights.

The light-house board gives notice that on the opening of navigation, 1894, the following changes will be made in aids to navigation on the lakes:

The fourth order light at Eagle Harbor light station, northerly side of Keweenaw point, Lake Superior, will be changed from a fixed white light varied by a white flash every two minutes to a fixed white light varied by a white flash every minute.

At Raspberry island light station (Apostle group, Lake Superior) the fifth order light will be changed from a fixed white light, varied by a white flash every 90 seconds, to a fixed white light, varied by a white flash every minute. The order of the light will not be changed.

At St. Marys Falls canal, north pier light station, west entrance the light will be changed from a fixed red light of the sixth order to a fifth-order light showing fixed white varied by a red flash every minute.

Geo. C. Baker, inventor of the submarine torpedo boat, died at Washington, Friday, from appendicitis.

The total war ship tonnage launched by the most active naval powers in 1893 was: France, 52,188; United States, 40,050; Great Britain, 28,920; Russia, 17,320.



### Around the Lakes.

An effort will be made by the insurance companies to locate the steamer Dean Richmond, sunk off Dunkirk last fall.

Capt. Victor Bonah of Detroit has purchased the schooner Kewaunee for \$3,500. E. G. Ashley has sold the barge Brooklyn to Margaret C. Lick-leider of Detroit for \$1,700.

William Farnsworth, dealer in ship supplies at South Chicago, called on some of the vessel owners of Cleveland a few days ago, while on a trip to the principal ports around the lakes.

Capt. James P. Devney, who was for a great number of years connected with shipping at Ashtabula Harbor, died at that place a few days ago. He was seventy-three years of age.

The Detroit and Cleveland company's steamers City of Alpena and City of Mackinaw will extend their trips to Toledo this season, and drop some of the small intermediate points from their time card.

At marshal's sale in Cleveland Tuesday, the Marine Banking Company, holding the principal claims against the small steamer W. P. Thew, purchased the boat, and will, it is understood, settle minor claims.

It is probable that announcement will be made shortly of a contract having been closed for a new passenger boat, which the Goodrich Transportation Company of Chicago decided to build at its last annual meeting.

James Edward Dalliba, who died at Marquette on the 23d inst., was among the best known residents of the upper Michigan peninsula. He was the father of W. S. Dalliba of Chicago, and J. H. Dalliba, now with Pickands, Mather & Co. of Cleveland.

City authorities in Cleveland are talking of undertaking, without government aid, the improvement of the Cuyahoga river so as to admit of deep water navigation for four or five miles further up the river than is possible with the present draft of water.

In a letter to the REVIEW, Chas. C. Smith, corresponding secretary of M. E. B. A., No. 48, Sandusky, says the association has taken in about twenty new members recently. "We all like the REVIEW better than any other marine paper" is a note that accompanies a remittance for No. 48's subscription.

Capt. Henry Johnson will shortly remove permanently to Green Springs, O., a health resort which he controls, and he has accordingly transferred his boats, the steamers H. J. Johnson and Swain and schooner Helvetia, to the Sandusky district. Capt. Johnson is desirous of disposing of all of his vessel interests.

La Salle & Wolvin, Duluth vessel brokers, have dissolved partnership. Mr. A. B. Wolvin will devote his time to the agency of the Western Transit Line and to the management of the steamers W. H. Gilbert and Emily P. Weed, of which he is managing owner. Capt. F. N. La Salle will continue the vessel brokerage business.

Officers of the Canadian Pacific Company say they have considered the question of entering the lake and rail traffic, with a line of chartered steamers between Chicago and Owen sound on Georgian bay, connecting at the latter place with their rail line to New England and Boston, but at present the company is unfavorable to the project.

John C. Fitzpatrick, formerly of Cleveland and Buffalo, is now a member of the firm of H. B. Earhart & Co., vessel brokers, Duluth. Mr. Earhart will, in addition to his brokerage business, look after the interests of the Central Vermont company at Duluth, in the new line that is to include the steamers John Rugee, Denver and Pueblo.

Henry E. Judson has been appointed assistant inspector of hulls in the Cleveland office of the steamboat inspection service. Capt. Judson was in the Bradley employ for a number of years as master of sailing vessels and mate of steamboats. He is a son of the late Capt. George Judson of Cleveland, who was also in the Bradley employ and one of the pioneer lake vessel masters.

Although the schooner John B. Merrill was totally wrecked on Lake Huron last fall, the owners of the boat prosecuted a suit before United States District Judge Swan in Detroit to recover \$16,500 claimed as damages involved in a collision with the Lehigh Valley steamer Fred Mercur in the Detroit river two years ago, and were successful in the action.

Of 157 vessels comprising the grain fleet at Chicago, 113 were loaded on Saturday last and ready to go into commission, and many of the other forty-four were chartered. The grain afloat in the river on that date aggregated in round numbers 7,275,000 bushels; of this, 6,193,400 bushels was corn and 944,100 bushels wheat, and the balance, 137,500 bushels was oats. The grain loaded was consigned as follows: To Buffalo or Erie, 6,260,600 bushels; to Ogdensburg, 516,600 bushels; to Kingston, 394,800 bushels; to Port Huron, 103,000 bushels. Ninety-two of the vessels were consigned to Buffalo.

### Illustrated Patent Record.

SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM LATEST PATENT OFFICE REPORTS.

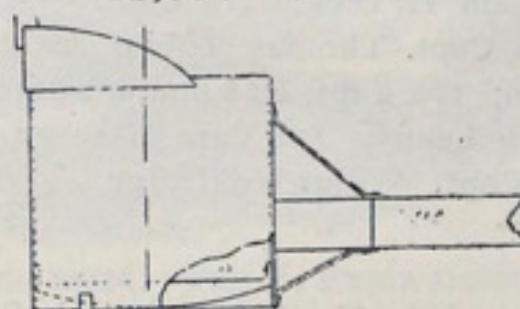
516,747. PROPELLING MECHANISM FOR VESSELS. August Thomas, Petersburg, Ky. Filed Dec. 10, 1892. Serial No. 455,105. (No model.)

Claim.—In a chain-propeller, the combination of an endless chain, buckets secured thereto centrally at equal intervals, sprocket wheels engaging the chain and provided with radial openings with sides flaring outwardly in both directions from the radial axis and a recess at the bottom of the opening—said openings admitting the buckets without contact but engaging their outer edges in the bottom recesses to retain them in radial positions while passing around the wheel.

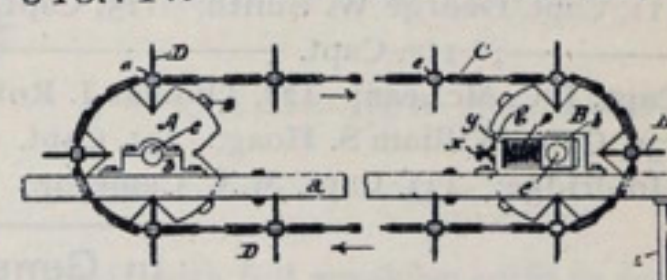
516,968. COMBINED LIFE BOAT AND SHIP'S SAFE. Cuthbert Gardner, Redcar, England. Filed May 27, 1893. Serial No. 475,700. (No model.)

Claim.—A life boat provided with an upper deck having openings therethrough for the bodies of the passengers or crew with water tight jackets adapted to strap around the bodies of the said passengers or crew,

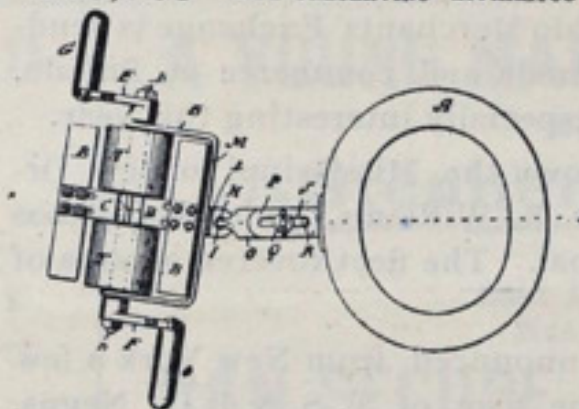
516,697 DREDGE-BUCKET



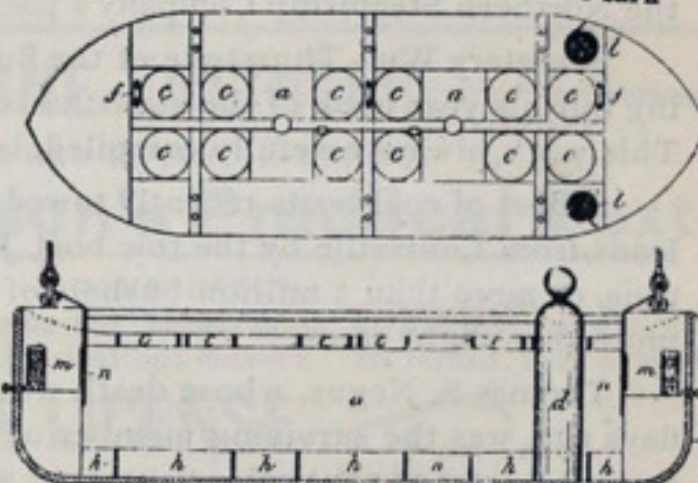
516,747. PROPELLING MECHANISM FOR VESSELS



516,720 LIFE-PRESERVING APPARATUS



516,968. COMBINED LIFE-BOAT AND SHIP'S SAFE



air funnels *f* bent over and opening downward as shown, closed air chambers and safes arranged along either side of the said central chamber, air chambers at the ends of said central chamber, oil tanks with outlets thereto opening outboard situated in the ends of the boat; and raised tanks *h* adapted to serve both as seats and to contain water, provisions or ballast arranged along the bottom of said central chamber.

516,697. DREDGE BUCKET. Erastus S. Bennett, Denver, Col. Filed Feb. 24, 1891. Renewed March 22, 1892. Again renewed Aug. 14, 1893. Serial No. 483,152. (No model.)

Claim.—A dredge bucket provided with a dumping door, and having a grating adjacent to the door and across the discharge opening.

516,720. LIFE PRESERVING OR SWIMMING APPARATUS. Philip Goldmann, New York, N. Y. Filed March 23, 1893. Serial No. 467,348. (No model.)

Claim.—The combination with a life preserver or float, and a frame carrying a propeller mechanism, of an arm composed of two adjustably connected sections, one of which is secured to the life preserver or belt, and the other one of which is jointed to the frame of the propeller mechanism.

### The Work on Lake Currents.

The chief of the weather bureau desires to call attention to the investigation of the currents of the great lakes during the season of 1892-93, and would request the assistance of all interested persons in advancing this important work. Vessel masters have kindly floated in the different lakes bottles containing a paper giving the position where the bottle was floated and date of floating. A number of these bottles have been recovered, but there is still a large number yet to be found, and it is thought possible they are now lying on the beach, and it is requested of all persons who frequent the lake shore to keep a lookout for these bottles, and when found please complete the paper in the bottle, inclose it in the penalty envelope (which requires no postage), and forward it promptly to Washington, when the finder will receive proper acknowledgment. Many interesting features have been developed from the return of these bottle papers.

### Another Lumber Boat.

At Algonac, Saturday, the new schooner just completed by A. Smith & Son, was launched. She was named W. K. Moore in honor of the late Dr. W. K. Moore of Algonac. On account of the high esteem in which Dr. Moore was held the name was received very favorably. This boat's capacity is 900,000 feet of lumber. Her fitout includes a steam windlass, and is complete in every way. Her cabin of quartered oak is said to be the finest ever put on a tow barge.



### Some Appointments of Masters and Engineers.

[Continued from page 7.]

Barrey; Kaliyuga, Capt. John Lowe, Engineer Jos. Patterson; Edmond S. Pease, Capt. Thomas Sloan, Engineer — — — — —; Schooners—Fontana, Capt. Henry Harris; Planet, Capt. Frank Parsons.

Warner & Co., Cleveland, O.: Steamers—W. B. Morley, Capt. J. A. Nicholson, Engineer A. Manion; Keystone, Capt. Carlton Graves, Engineer Kelley. Schooners—J. G. Masten, Capt. H. Parker; H. A. Kent, Capt. ———.

American Steel Barge Company, West Superior, Wis.: Steamers—Colgate Hoyt, Capt. W. H. Kilby, Engineer Gilbert Newton; E. B. Bartlett, Capt. M. A. Boyce, Engineer ———; A. D. Thomson, Capt. A. R. Robinson, Engineer Ernest Sampson; Thomas Wilson, Capt. A. P. Chambers, Engineer Geo. Blauvelt; Samuel Mather, Capt. John H. Smith, Engineer Irwin Marshall; James B. Colgate, Capt. Robert R. Smith, Engineer J. Hodgson Pierce. Barges—101, Capt. ———; 102, Capt. George Gallant; 103, Capt. F. E. Johnson; 104, Capt. Carl D. Secord; 105, Capt. W. C. Butts; 107, Capt. H. M. Boyce; 109, Capt. Sam. E. Lewis; 111, Capt. George W. Smith; 115, Capt. William H. Dick; 116, Capt. ———; 117, Capt. ———; 118, Capt. Thomas Tobin; 126, Capt. J. C. McLean; 127, Thomas J. Robinson; 129, Capt. E. Emanuelson; 130, Capt. William S. Hoag; 131, Capt. James Leahy; 132, Capt. George Holdridge; 133, Capt. M. C. Cameron; 134, Capt. Wilbur Holdridge.

### In General.

Capt. Frank Welcome will probably command the Northland, second of the Northern Steamship Company's passenger ships.

Secretary Wm. Thurstone of the Buffalo Merchants' Exchange is sending out his year book of the statistics of trade and commerce at Buffalo. This work, always carefully compiled, is especially interesting this year.

A fleet of coal boats recently towed down the Mississippi to New Orleans from Louisville by the tow boat Joe B. Williams, contained 38,000 tons, or more than a million bushels of coal. The fleet covered an area of more than eight acres.

Thomas S. Negus, whose death was announced from New York a few days ago, was the surviving member of the firm of T. S. & J. D. Negus, manufacturers of nautical instruments, who were well known in their special line of business in this country. The affairs of the firm have for some time past been conducted by the sons of the deceased brothers.

Mr. E. Platt Stratton, chief engineer surveyor for the American Shipmasters' Association of New York, was in Cleveland during the week in the interest of the American Lloyds Vessel Register, the new book upon which representatives of the New York organization have been at work for some time past. The book contains rules for lake construction and the list of vessels is well arranged, and seems to have had careful preparation. In valuations and ratings the compilers of the register undoubtedly aimed to satisfy vessel owners.

In Cassier's Magazine for April Mr. Joseph Sachs has an article on "Electrical Canal Boat Propulsion." After setting forth the requirements of a successful electric propelling system Mr. Sachs outlines what has been done and proposed in previous years, and finally details what he calls the motor locomotive haulage method, which is really an elaboration of the primitive mule method, but in which, instead of the slow and uneconomical animal, a more rapid and efficient electro-mechanical mule is substituted. This method he believes to be not only feasible but also the most practical of the various haulage systems thus far considered.

Commander Nicoll Ludlow, U. S. N., is one of the members of the court ordered to try Commander Oscar F. Heyerman on charges involving negligence and inefficiency in connection with the Kearsarge disaster. Commander Ludlow was in charge of the Chicago light-house district when his brother, Col. William Ludlow, U. S. A., and Commander Heyerman were involved in difficulties with the light-house board over the Sault river lighting matter. Lieut. Charles H. Lyman of the Kearsarge is also to be tried by court martial for the loss of the boat. Cablegrams from the expedition that left Boston some time ago for the scene of the wreck announce that the Kearsarge has been blown up and burned by the natives.

### Trade Notes.

A shipping directory of all vessels documented at Pacific coast ports, giving dimensions and particulars as to ownership, etc., has been issued by the San Francisco Commercial News. It makes a neat work of 60 pages.

The office of W. A. Kearfott of Cleveland, who represents Henry R. Worthington of New York in Ohio, has been removed to No. 24 South Water street, where a large store room will admit of a liberal stock of pumps being carried.

Among the steamships having electric light plants installed by the F. P. Little Electrical Construction and Supply Company, Buffalo, N. Y., is the large steel steamer No. 118, being built by the Detroit Dry Dock Company at Wyandotte, Mich. It is proposed to make this plant one of the

finest on the lakes, especially the switch-board, which is worthy of examination by anyone interested in electric plants.

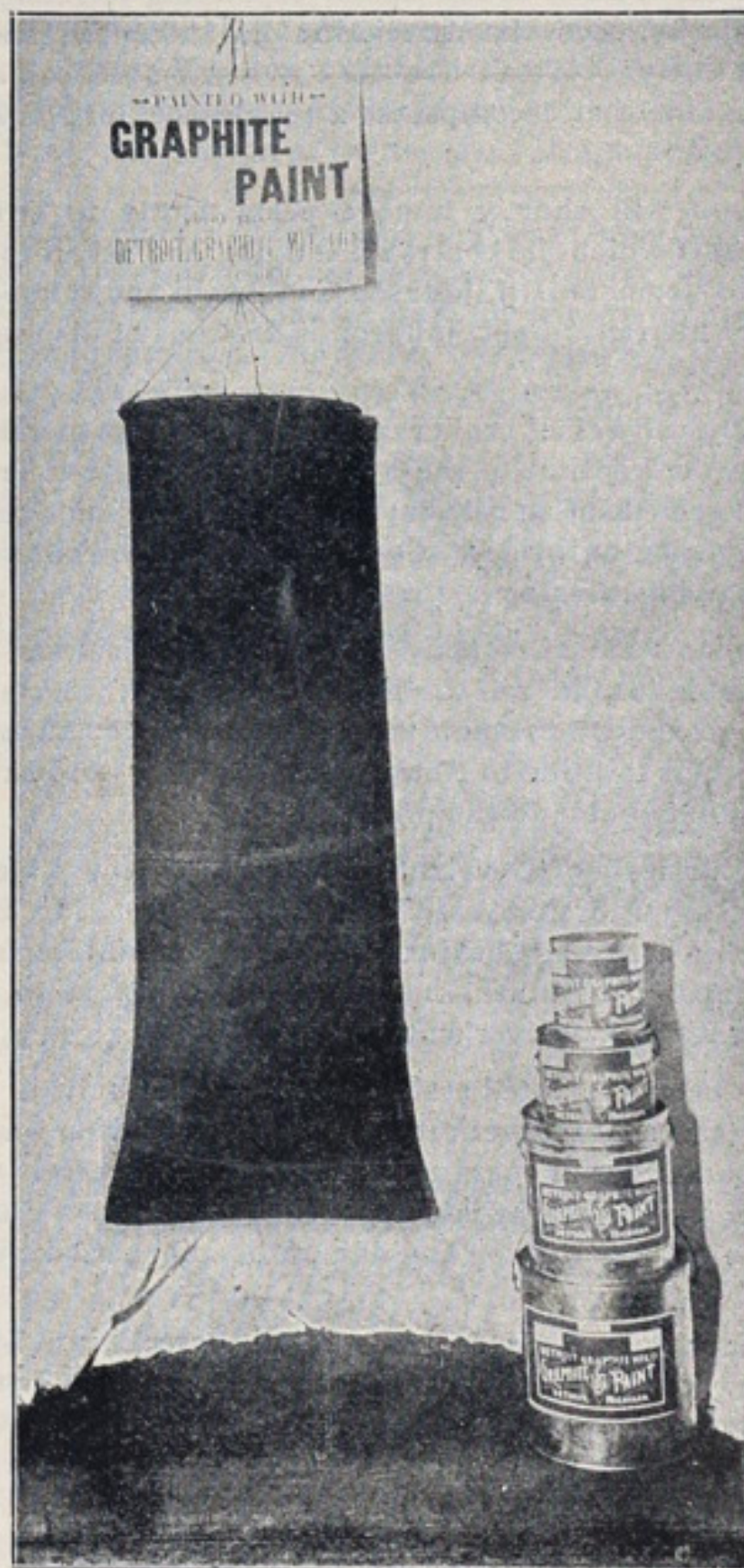
A catalogue issued by the Standard Steel Casting Company of Thurlow, Pa., will prove interesting to any of the attaches of lake ship yards. The engravings show steel bed plates for triple expansion engines for United States cruisers weighing 12,780 pounds, a stern post for the Columbia weighing 49,520 pounds and stern shaft bearing weighing 67,135 pounds.

A steam yacht 83 feet long, for cruising purposes, is being built by the Gas Engine and Power Company of Morris Heights on the Hudson for a New York yachtsman. This company's attention heretofore has been directed to naphtha launches with great success and it is probable that they will be equally successful in the new line.

In advertising matters the Joseph Dixon Crucible Company of Jersey City, N. J., is always original. Here is one of the latest notices sent out to the trade papers: "In the 'good old days' the engine room staff had a single cylinder low pressure engine to look after. Boilers were only built for 35 pounds or so of steam. See the difference now! Triple expansion engines, with pressures way up toward a couple of hundred pounds to the inch. Every year greater power and more mechanism is placed under the charge of the engineer and he is expected by education and study to keep up with the times in appliances and materials. The compound engines, the great motors, the heavy shafts and gears now so common, present many new questions of friction and lubrication. Under these conditions pure flake graphite has solved so very many of the problems in friction that it would seem to be the key to solve many others. The graphite should be soft and yielding, absolutely pure and free from grit, and the flake of uniform size. We have lately issued an interesting pamphlet concerning lubricating graphite which we will send to any address free of charge."

### Graphite Paint.

The illustration shows a two-bushel grain bag, painted with L. S. G. graphite paint in July, 1892. It has been kept full of water ever since without leaking.

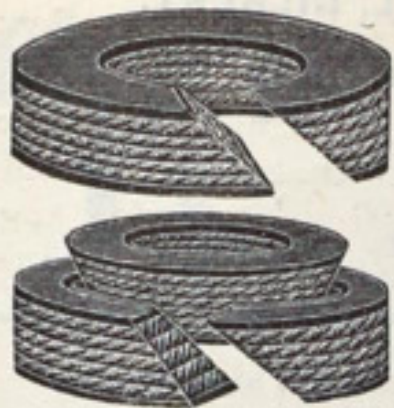


This is evidence of its water-proof qualities. Some canvas coated with this paint has several times been held over a gas flame a minute or two, in the same place, without becoming ignited and without hardening. This speaks for its fire proof qualities. A piece of tin painted with it has been warped back and forth until it broke, without cracking the paint. This is evidence of its non-cracking, non-blistering qualities. A year ago alternate flues in a boiler in Detroit were painted with this paint. They were examined recently and the painted flues were found to be in first-class condition, while the others were badly corroded. Even brine will not corrode it. Capt. G. R. Innes, manager of the Michigan Central car ferries at Detroit, has the following to say of this paint: "We have used it for nearly

three years, and although we have tried nearly every paint in the market, yours is the only kind we have yet found that would not blister, and that would stand the action of salt-brine in our steel decks."

The Standard Oil Company's manager at Detroit uses the paint on tank wagons, and says it resists the action of the weather and the corrosive action of the petroleum products. This was stated after a two years' trial. It has also been proven to be an excellent stack paint. For particulars write the Detroit Graphite Manufacturing Company, No. 541 River street, Detroit, Mich.





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Our Elastic Ring, Sectional, Spiral and Special Water Packings are the leaders in this line. For Steam, Water, Ammonia, High Speed Work and all places where packings are used they excel. Try our Special Water Packing, fully guaranteed for water end of pumps. See that our trade mark is on each package. Correspondence solicited.

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PITTSBURGH, 99 First Ave.  
OMAHA, NEB., 922 Farnam St.  
ST. LOUIS, 415 Morgan St.

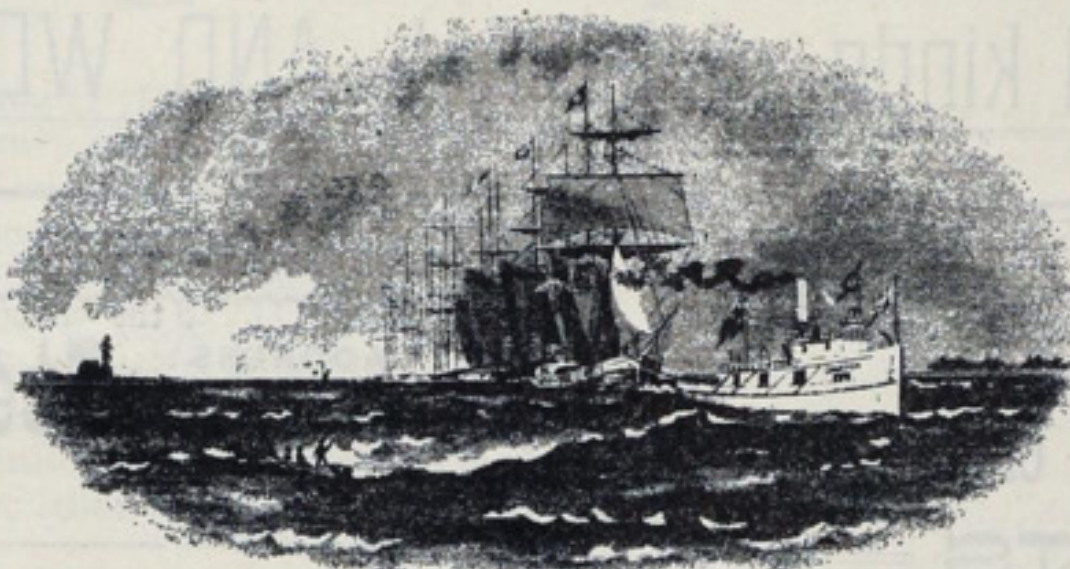
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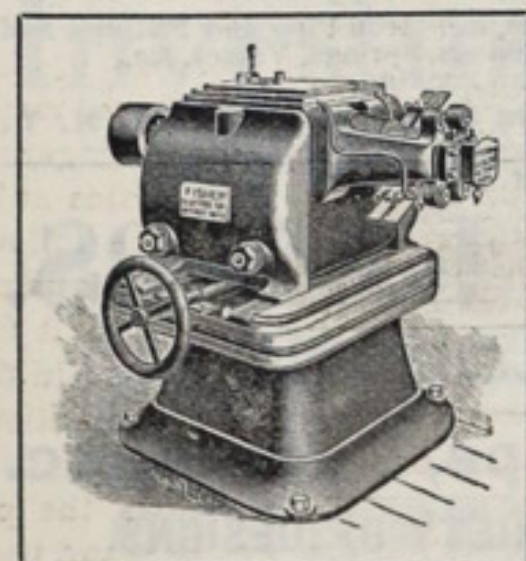
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Not technical but correct. By its aid, very probably, you

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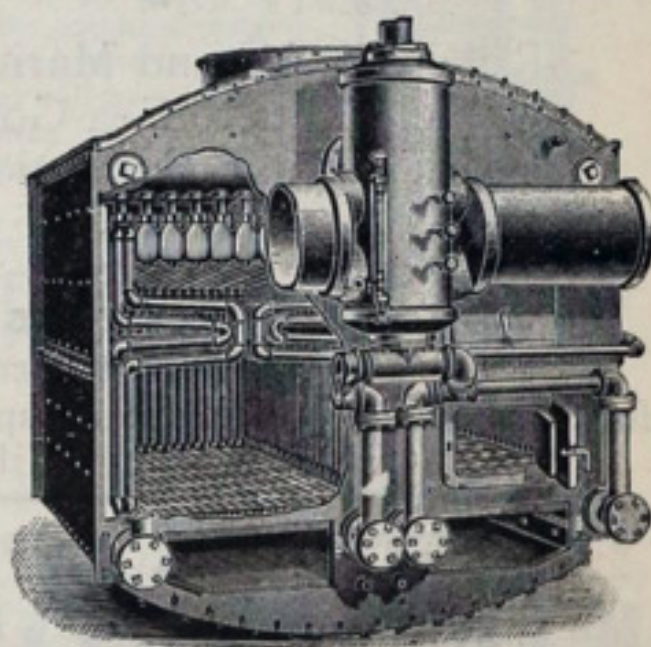
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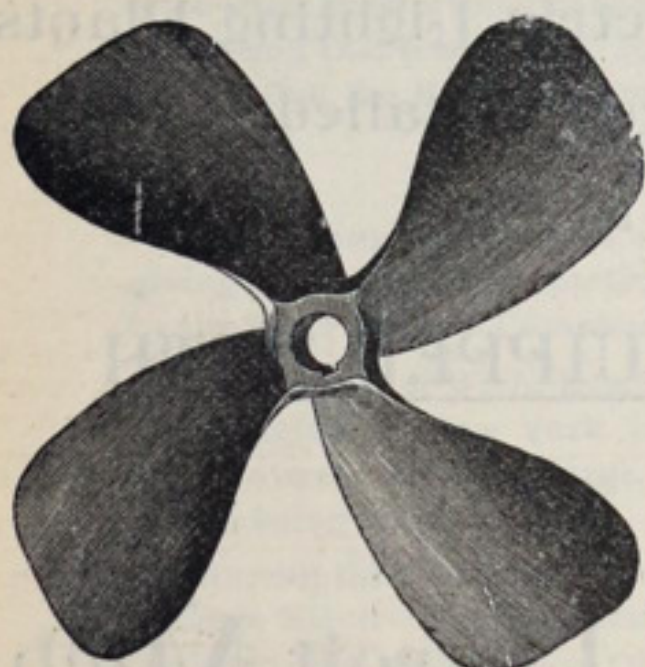
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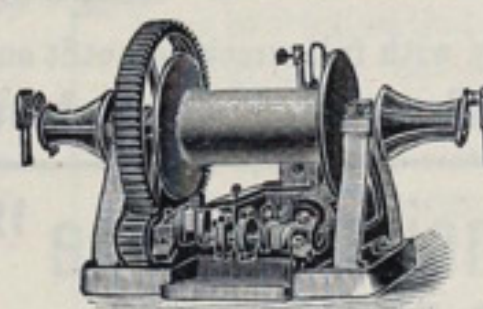
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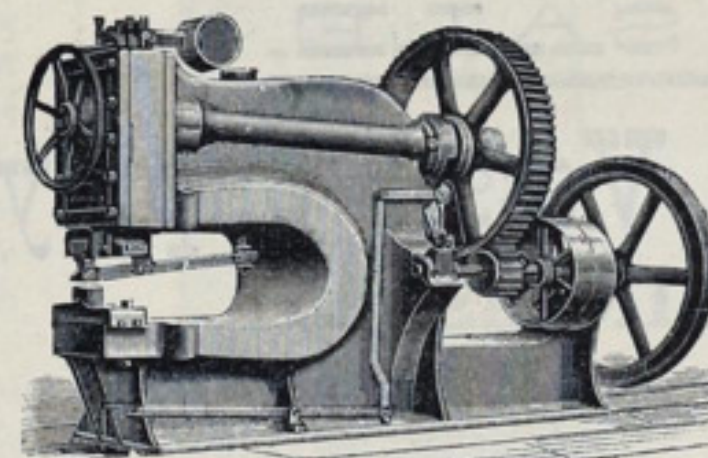
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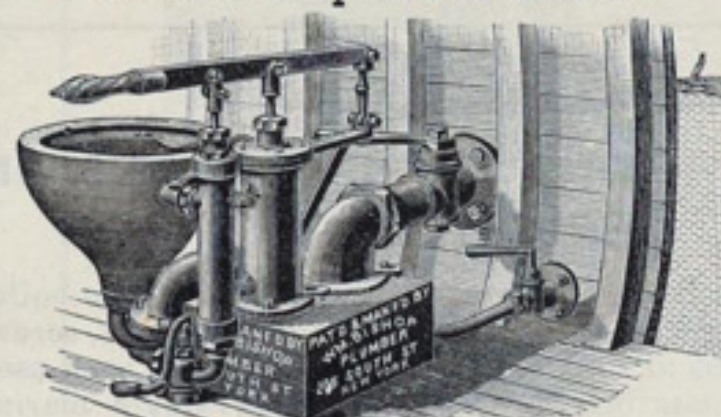
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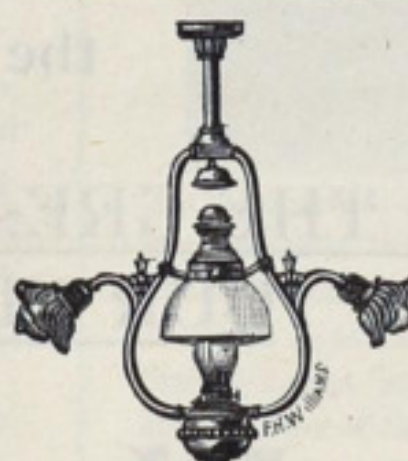
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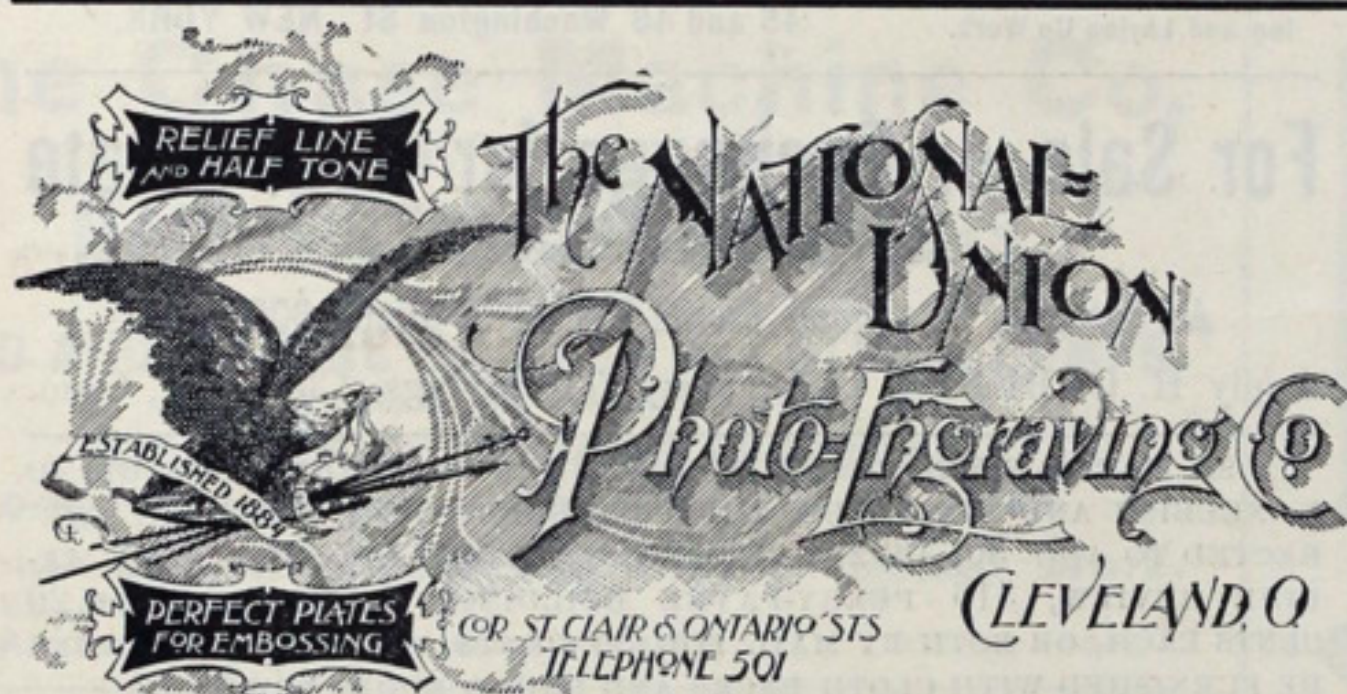
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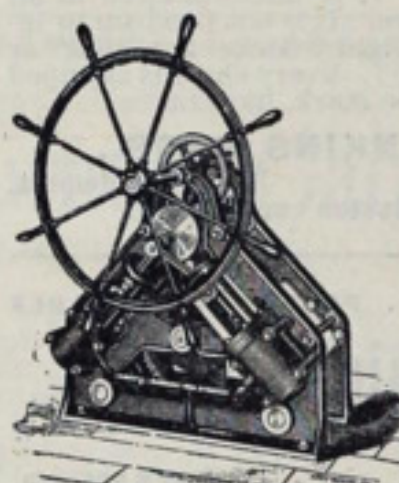
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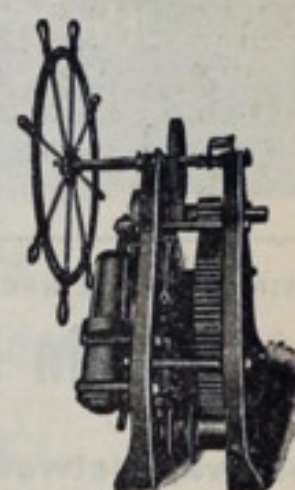
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7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31					

10-100 TON JACKS  
1-12 INCH HAWSER  
1-10  
1-3

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References: American Steel Barge Co.;  
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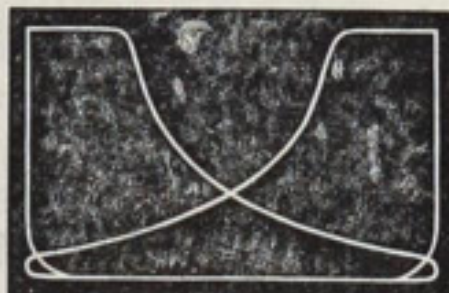
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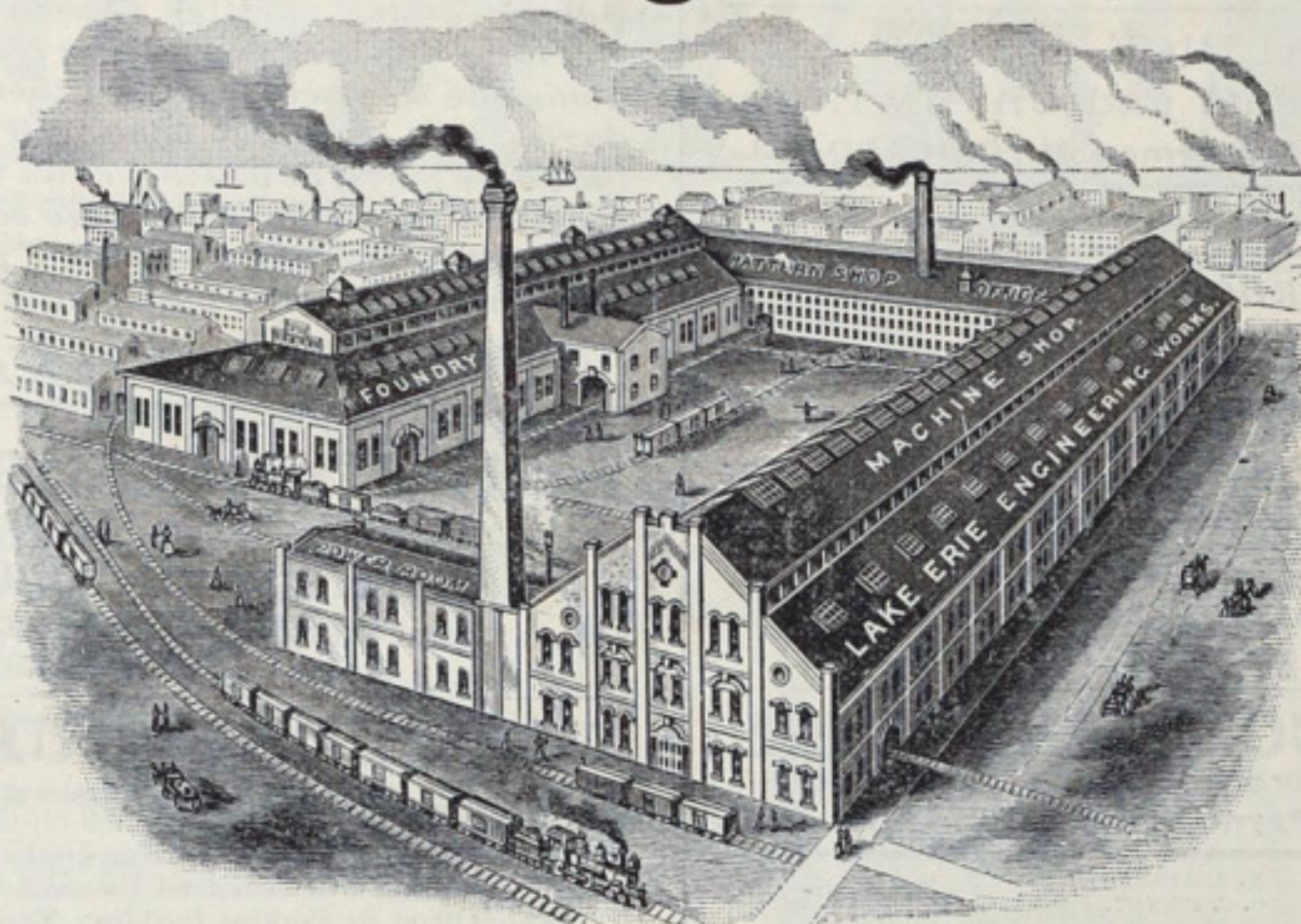


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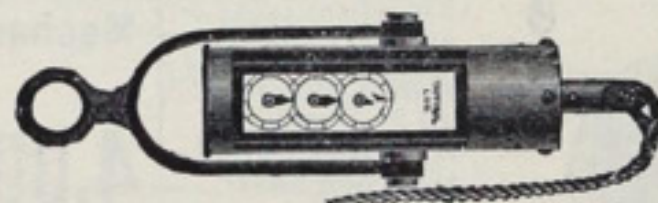
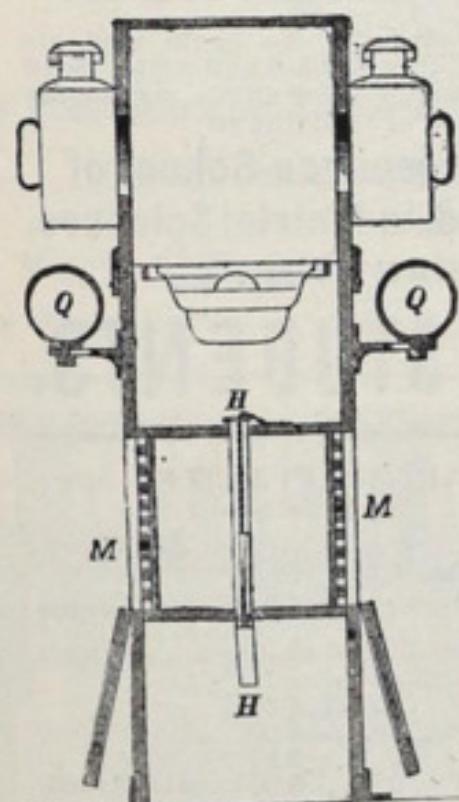
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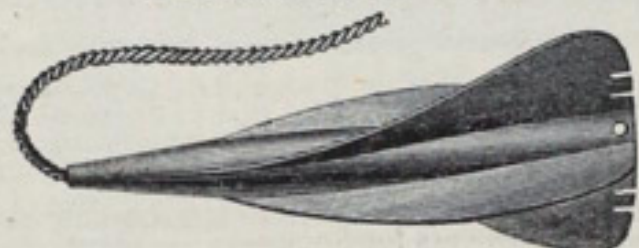
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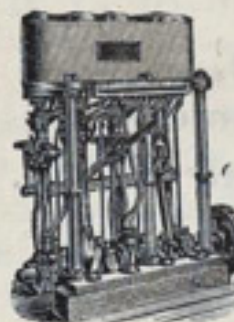
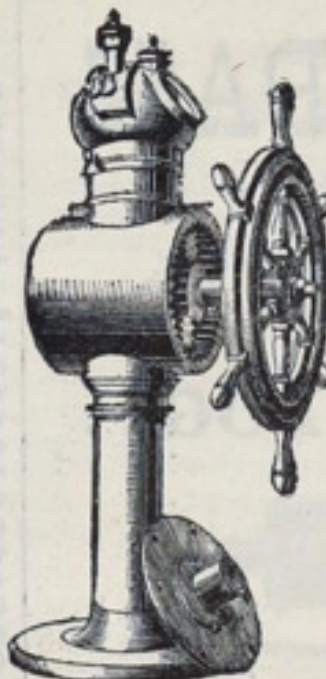
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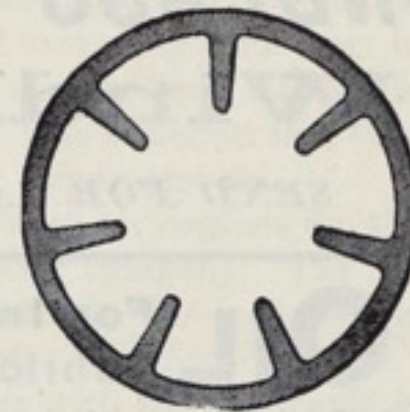
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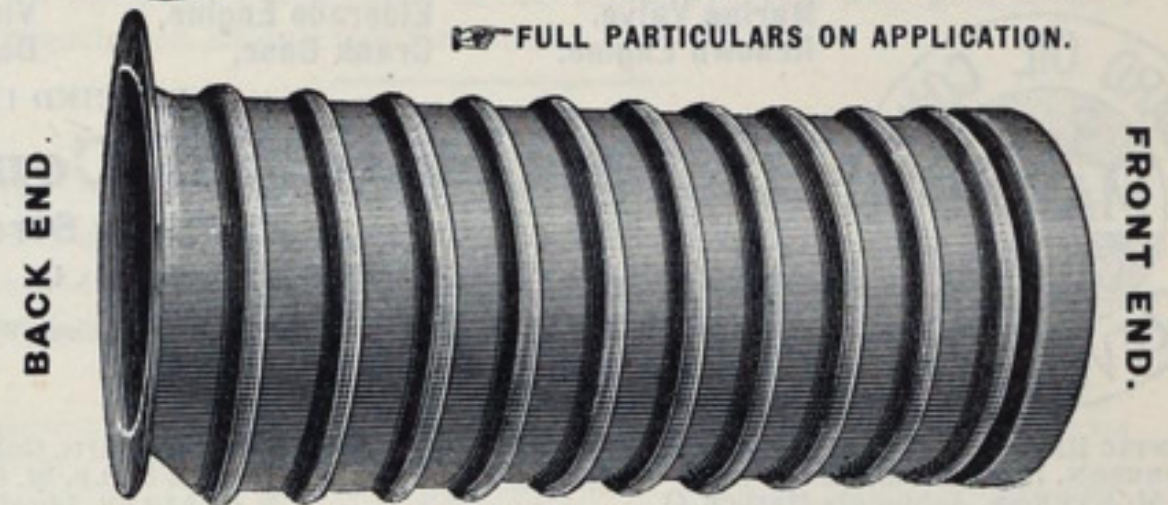
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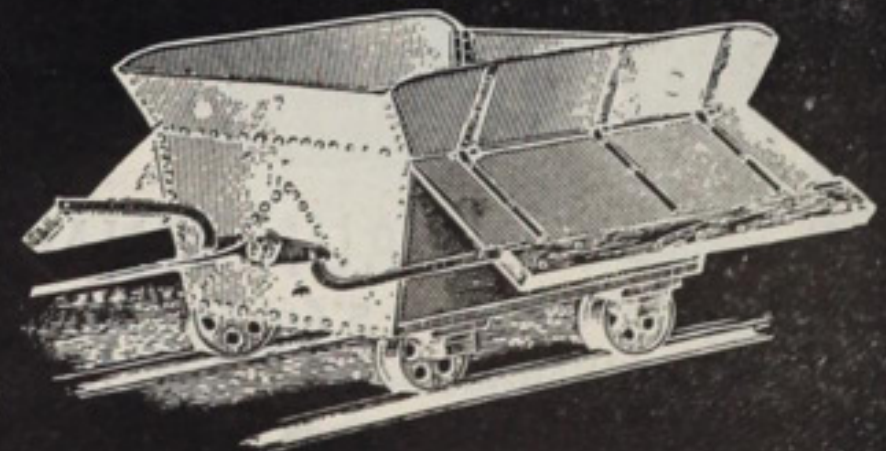
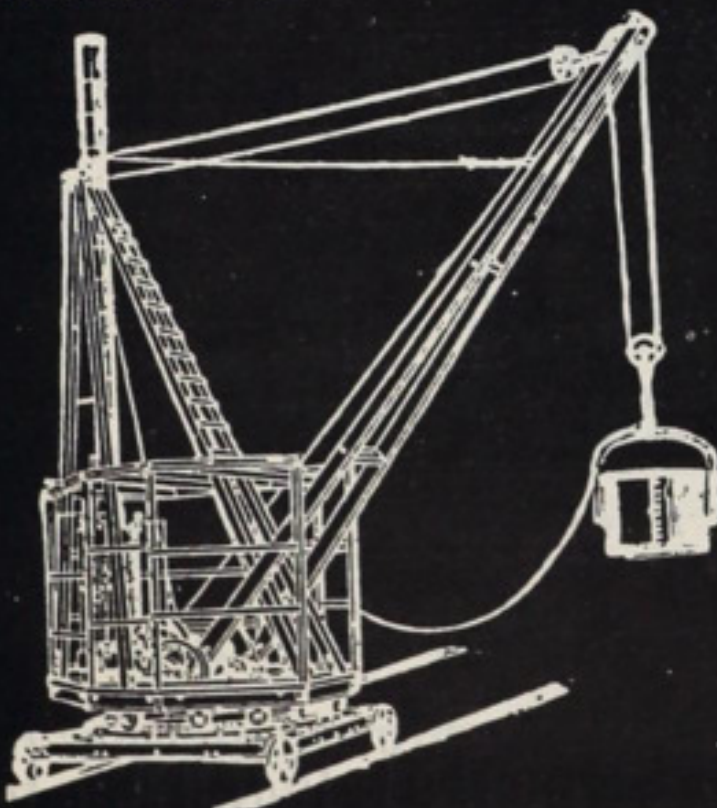
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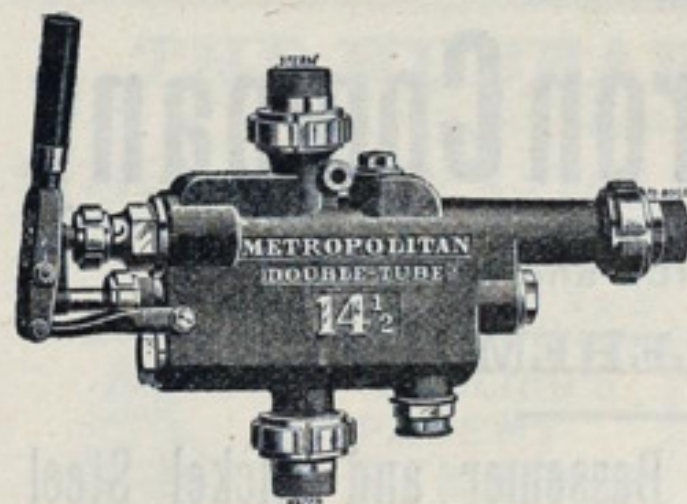
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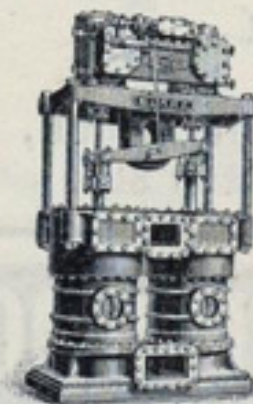
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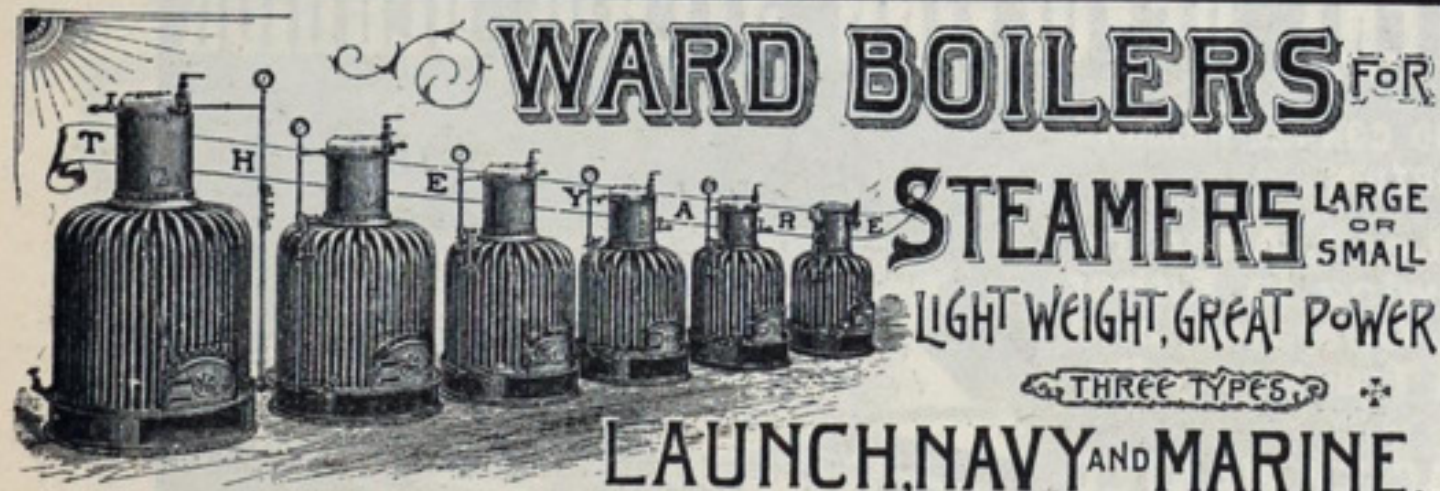
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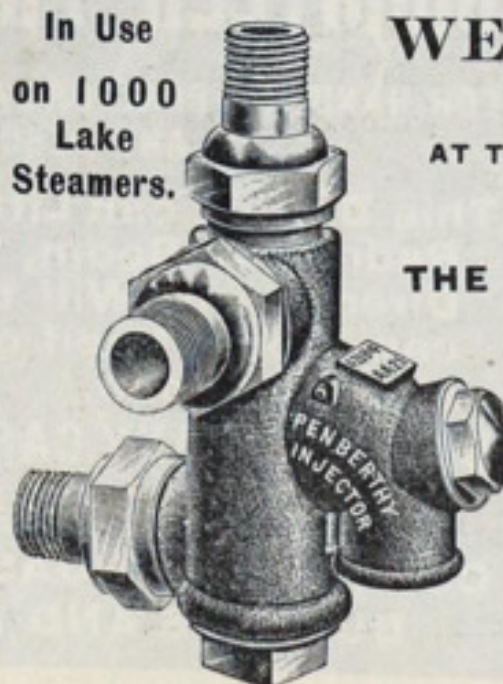
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